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PSEUDOMALIGNANT AND PRECANCEROUS LESIONS OF THE CERVIX

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In almost every statistical study of cancer results that has ever been made, the one conclusion which is always stressed is that the factor which, far more frequently than any other, determines the fate of the patient is the stage at which proper treatment is instituted. On this conclusion are based all the campaigns of public instruction. In the treatment of cancer of the cervix the profession seems to have reached an essential impasse with our present-day methods in spite of the fact that improvements and refinements in radiotherapy are still being pushed, with rather unimpressive improvements in results here and there. For the present, therefore, the obvious point of attack in the cancer campaign lies in the effort to increase the proportion of the early cases in which treatment gives such a worth while chance for cure.

Except for the occasional "accidental" find, one cannot be expected to discover the early cases of cancer unless patients are educated to seek advice as soon as suspicious symptoms appear, though even then, unfortunately, the patient is in some cases already doomed. On the other hand, physicians are not justified in placing the blame for delayed treatment entirely on the patients, for our own skirts are not by any means entirely clean. It is as unfortunate as it is true that there are still not a few patients who lose their opportunity for cure because of delay on the part of the physician, a delay not nearly so frequently due to lack of knowledge as to lack of thoroughness and conscientiousness.

What can physicians in general do to help the cause? They can contribute not only by educating the public collectively but also by taking advantage of everyday opportunities for advising individual women as to possible danger signals and the vital importance of heeding them. But they can do much more than this. They can develop in themselves habits of thoroughness and conscientiousness which will not permit them to omit painstaking examination of all cervixes that come under their observation, and especially those of patients with abnormal bleeding or other suspicious symptoms. And there is still more that they can do. They can learn to recognize lesions that are only suggestive of cancer or indicative of early stages of the disease, lesions quite different from the obvious late stages of cancer, such as the cauliflower growth or the excavated ulcer.

A great field for possible advance will be opened up when the general practitioner develops the habit of intensive study of the cervix by careful inspection rather than by mere casual palpation and when he appreciates that cancer may exist even though such an examination reveals only a slightly hardened and perhaps granular or slightly ulcerated area on the cervix, frequently bleeding on slight touch, or a spongy, slightly vegetative area on one or the other lip, with perhaps the same vascularity. If such an area is found, the existence or nonexistence of cancer can be definitely determined in practically every case, and here lies the final duty of the general practitioner; viz., to press the matter unremittingly to a decision, which may be so momentous to his patient. This will mean that both he and the patient must go to a little trouble.

The diagnosis will in such cases often mean biopsy and pathologic examination, so that the average physician will probably elect to put the burden on the gynecologist, presumably trained in such procedures. Since physicians are, after all, primarily people and therefore not always amenable to exhortation and the dictates of conscience, it is obvious that the right plan of procedure cannot be made the universal one. Nevertheless, in his concern at the easily understandable indifference of the public, the physician should not close his eyes to the less forgivable apathy often noted within his own ranks.

The particular problem to be considered in this paper, however, concerns the specialist—the gynecologist and the pathologist—even more than the general practitioner, for it deals with what may be called the earliest stages of cancer and with lesions that in some respects resemble cancer and in others do not, as well as with still other lesions which are commonly looked on as predisposing to cancer.

The term "precancerous" has been used for many years in different senses by different writers and with differing degrees of enthusiasm. By one group the designation has been applied rather generally to lesions believed to predispose to cancer and embracing especially chronic irritative and inflammatory conditions, even though these in themselves are very frankly benign. The other and better definition of the term precancerous refers to lesions that exhibit cell activity unusual in benign conditions and yet lack certain characteristics of actual cancer. When used in this sense, the term conveys the impression that the lesion in question is, from a histologic standpoint, a transitional one, the natural corollary being that it represents a real stepping stone between the benign and the malignant.

Up to comparatively recent years such a concept of the term produced some resentment among a great many pathologists, because of the belief that a lesion is either benign or malignant, though in some cases there may be difficulty in making the histologic differ-

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entiation between the two. During the past few years, considerable evidence is accumulating to suggest, though not perhaps to prove, that there is actually a very gradual histologic transition from the benign to the malignant and that certain so-called borderline conditions may actually represent transitions to cancer or very early forms of the disease, even though there is no



Fig. 1.—Squamous epithelium creeping in long columns beneath the columnar gland epithelium, often proliferating so as to blot out the latter and form large epithelial nests, which may be mistaken for cancer.

morphologic criterion to determine just when the definitive stimulus is applied that sets the cells off on a malignant career.

In whichever of the two foregoing senses the term precancerous is used, I believe it has served a useful purpose, keeping before the physician the idea of lesions precursory to actual cancer but clinically benign in themselves, so that their removal gives a measure of protection against cancer. It need hardly be emphasized that most lesions of this sort are merely predisposing and that their unfavorable tendencies can lead to cancer only when some other constitutional factor, as yet unknown, is operative. The profession is as yet totally in the dark as to the exciting cause or causes of the whole group of cancer diseases and so can do nothing to avert or counteract these unknown forces. But it can readily correct most of the benign irritative lesions, which by almost unanimous consent have an influence on the development of cancer; and this represents about the sum total of cancer prophylaxis at the present day.

A number of studies of large series of cases have been made on this point (Pemberton, Smith and his associates, Bland, and Graves) and these have been summated by Saltzstein and Topcik.¹ Of 18,562 patients who may be considered to have had adequate treatment for cervical irritative lesions, only fifteen were known to have developed cancer later. On the other hand, of 2,255 patients who actually had cervical cancer, only thirty-three had had adequate treatment of preexisting cervical lesions.

In no field are the precancerous lesions more interestingly illustrated than in the cervix. Here is encountered one of the most common types of cancer, and here, chiefly as a result of childbirth trauma, is found an unusual incidence of chronic irritative lesions, in a

part of the uterus which is readily accessible to both diagnostic and therapeutic procedures. The body of the uterus, on the other hand, is relatively free from the traumatic effects of childbirth, and there is much doubt whether the presence of myomas influences the incidence of corporeal carcinoma to any noteworthy degree. On the other hand, it is here that the ovarian hormones exert their outstanding effects, and the work of the past two years has shown a rather remarkable relationship between these hormones and carcinogenesis, as I shall later discuss. Here, then, is a possible predisposing factor to be considered in connection with the genesis of corporeal cancer, and one which I do not believe can be disregarded.

Starting with lesions of the cervix that are frankly benign, and which from the standpoint of cancer are merely predisposing but not precancerous, by far the most important group is that represented by the chronic inflammatory and irritative lesions so very frequent in this portion of the uterus. Even in the most intense forms of chronic cervicitis there is usually not the slightest pathologic simulation of cancer, although in not a few there is much justification for clinical suspicion. One frequently sees cervixes that are badly eroded, irregularly hypertrophied and indurated, with a granular mucosa which bleeds very readily on slight touch and in which, therefore the clinician would be very remiss if he did not at least suspect the possibility of a malignant condition. And yet in such cases one often finds, in spite of extensive inflammatory changes, not the slightest suspicion of histologic malignancy if a biopsy is done, as it should be. On the other hand, in lesions which clinically are far less conspicuous and which must be searched for much more intensively, one may find definite evidence of cancer.

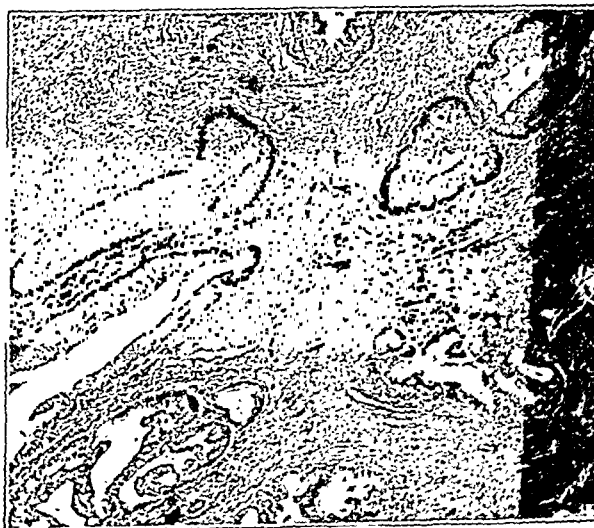


Fig. 2.—Large epithelial nests seen with epidermidization of cervix but with none of the cytologic changes seen with cancer. Compare with figure 3.

In a rather considerable proportion of inflammatory lesions, as well as in not a few cervical polypi, one may encounter histologic pictures which, while entirely benign, may easily be mistaken for cancer unless one is familiar with their characteristics and significance. The changes to which I particularly refer are those designated as squamous metaplasia or epidermidization. In this condition columns and nests of squamous epithelium may invade far below the surface, so that in

1. Saltzstein, H. C., and Topcik, H. C.: *Am. J. Cancer* 17: 951-961 (April) 1933.

marked cases a pattern is produced which is not unlike that of epidermoid cancer. Much more frequently one sees that the squamous invasion proceeds from the basal layers of the surface mucosa, which flows down along the gland wall beneath the cylindric epithelium. The proliferation of the squamous epithelium may produce flattening or disappearance of the columnar gland cells and eventually replacement of the gland by a column of squamous epithelium. In such cases the cervical stroma may show numerous nests of squamous epithelium and hence the simulation of cancer.

The distinction is usually easily made, chiefly on the following points: 1. The invading epithelium shows no sign of anaplastic activity, though even this may in some areas be simulated, as when the section passes tangentially through the basal layers, which normally show more compactness, larger and heavier staining nuclei, with perhaps occasional mitosis. Examination of other fields, however, will almost always clear up this point of doubt. 2. Characteristically the invading squamous epithelium follows the scaffolding of the glands, creeping beneath the glandular epithelium as a column of from one to many cells in thickness, which by further proliferation encroaches more and more on the gland epithelium and often blots it out almost or quite completely. One then has the picture of solid nests and columns of cells deep in the stroma, and in this respect resembling a carcinoma. It is rare, however, not to find the telltale transition phases showing the manner of development of these extreme pictures.

Even in cell nests which at first sight look quite solid, one often sees fenestrae of mucoid content, degenerated remnants of the original mucoid cylindric cervical gland epithelium. The manner of production of this type of epidermization, as well as the difference between its histologic appearance and that of genuine cancer, are well shown in figures 1, 2 and 3. For a fuller discussion of the histogenesis of this interesting process I refer to a previous paper of my own.² The lesion is one of great frequency and of great importance from the standpoint of differential diagnosis, and mistakes are still frequently made, though less often than formerly.

To pass on to the discussion of lesions which are precancerous in the sense of being possible precursors of the disease rather than merely predisposing factors in its development, especial interest attaches to leukoplakia, which up to a few years ago was practically an unheard of lesion so far as the cervix is concerned. The present-day interest in this condition is due to the development of two new diagnostic methods, the colposcope of Hinselmann and the Schiller tinctorial test. During the past ten years or so Hinselmann³ has published numerous papers stressing the fact that only with the magnifying colposcope can one hope to discover the often tiny areas of leukoplakia. More important, however, is his contention that cervical leukoplakia in general must be looked on as a precursor of cancer, a view which, as will be seen, has led to widespread discussion and much difference of opinion.

The Schiller test,⁴ based on the discovery by Lahm that the normal squamous epithelium of the portio is rich in glycogen while cancerous epithelium is lacking in glycogen, has also been the subject of much discussion. The method is often though not necessarily

combined with colposcopy. The procedure consists of painting the cervix very thoroughly with Gram's solution (1 part of iodine, 2 parts of potassium iodide, 300 parts of water), this giving better results than compound solution of iodine, which is used by some. Instead of painting the cervix, one may spray the solution on with an atomizer, as Henriksen⁵ has suggested.

The normal squamous epithelium of the cervix takes a deep brown or mahogany stain, while cancerous epithelium remains unstained. The problem, however, is not quite so simple as this, chiefly because other lesions than cancer may fail to take the stain. This applies especially to the leukoplakic group. Moreover, it should be remembered that the cylindric epithelium of the cervical canal takes only a rather light pinkish brown stain, and proper cognizance of this must be taken in the numerous cases in which erosions and ectropion are associated features. Traumatic abrasion of the squamous epithelium may also interfere with its tinc-



Fig. 3.—The cell nests of genuine early cancer, made up of highly anaplastic epithelium.

torial response, while cancers in which ulceration and necrosis have developed may take a dirty brownish stain, though at their growing margin whitish unstained areas may be noted.

So far as these two diagnostic procedures are concerned, my own impression, after some experience with both, is that they are of rather limited value. Neither procedure is of the kind which can be expected to achieve adoption by the general profession, nor is this desirable. Considerable experience is necessary for proper interpretation with either method, and neither is of much value unless combined with biopsy and pathologic diagnosis, so that it is quite certain that the general practitioner will wish to transfer this responsibility to the specialist who is trained in such matters. Colposcopy, moreover, is a time-consuming procedure.

The chief value of the Schiller test, even to the expert gynecologist, is to indicate the proper points for biopsy, though in the great majority of these cases the suspicious areas are apparent enough, sometimes

2. Novak, Emil: *Am. J. Obst. & Gynec.* **18**: 449-473 (Oct.) 1929.
3. Hinselmann, H.: *Zentralbl. f. Gynäk.* **51**: 901-903 (April 9) 1927; *Ztschr. f. Geburtsh. u. Gynäk.* **101**: 142-165, 1931.
4. Schiller, W.: *Surg., Gynec. & Obst.* **56**: 210-222 (Feb.) 1933.

5. Henriksen, E.: *Surg., Gynec. & Obst.* **60**: 635-644 (March) 1935.

pathetically so. The same statement may be made concerning the colposcope, so far as actual cancer is concerned.

I do not believe that a good gynecologist who examines the cervix very carefully in a very good light will overlook many cancers that the colposcope would reveal, in spite of Hinselmann's contention to the contrary. Moreover, this procedure as well as the Schiller test, is obviously intended chiefly for the detection of the



Fig. 4.—Leukoplakia of the cervix, presenting as an unstained whitish plaque with the Schiller test, but pathologically showing only hyperkeratosis and slight increase of cell activity, with occasional mitoses but with no suggestion of malignancy.

earliest cases, those in which there has been no bleeding, for the occurrence of the latter presupposes that ulceration has already begun. To pick up these very early cases the colposcope would have to be used practically as a routine, which is almost out of the question in most clinics. In cases in which symptoms have already developed there is rarely any difficulty in finding the suspicious area with the naked eye.

On the other hand, both these procedures are of importance in that intensive study of the cervix which alone will ultimately throw light on the very earliest stages of cancer, as well as of those lesions which many look on as stepping stones to cancer. For this reason their employment in properly manned clinics is highly desirable, for they will keep constantly before the staff the importance of intensive study of the cervix, and their employment, combined with biopsy, should yield material for the study of a group of lesions concerning which pathologic knowledge is still anything but precise.

As a matter of fact, in many laboratories of gynecologic pathology the recently developed intensive interest in the cervix is already reflected in the increased amount of this borderline material. Up to the past few years there was only an exceptional case in which the presence or absence of a malignant condition could not be reported with reasonable certainty. The increased number of cases in which pathologists will disagree is due not only to the increased interest in biopsy, which has been engendered by the work of Hinselmann and Schiller, but also to the fact that there is no unanimity among pathologists as to the criteria of very early cancer.

Even in the clinically early cases with which physicians have had to deal in past years, the pathologic diagnosis has usually been easy enough, for such lesions present exactly the same pathologic features as do very late cancers. There is the same evidence of varying

degrees of cell anaplasia and the same evidence of invasiveness. The late cancers differ from the early ones only in degree and perhaps in such secondary changes as infection, necrosis and ulceration.

But there must be even earlier phases, phases that the physician has probably been overlooking. Is it not logical to believe that there must be stages before actual invasion sets in, in which the epithelium has nevertheless already embarked on its malignant career? As a matter of fact, it is around this point that much of the present-day discussion centers, some holding that evidence of invasiveness is a *sine qua non* to the diagnosis of a malignant condition, others that even without this there may be a reasonable certainty of one.

The various degrees of leukoplakia have furnished the basis for much of this discussion. The term is really a clinical rather than a pathologic one, and as employed by Hinselmann it is a very comprehensive term embracing many different degrees of abnormality. These range from simple hyperkeratosis with perhaps slight increase in activity of the basal layers (Hinselmann's rubric I) at one extreme to lesions which most pathologists would call cancer, characterized as they are by hyperchromatosis, mitosis and other evidences of anaplasia, together with budding into the underlying stroma (rubric IV).

Between the first two grades of the four described by Hinselmann (rubrics I and II) and actual cancer there is a wide gap, almost as wide as that between normal epithelium and cancer. And yet this author believes that all grades of leukoplakia are precancerous, a view which, to my mind, is not supported by his evidence. Only a very small group of cases have been discovered in which cancer appears to have developed on a leukoplakic basis. However, as Meyer⁶ says, this is no more justification for considering leukoplakia an important precancerous lesion than the occasional occur-

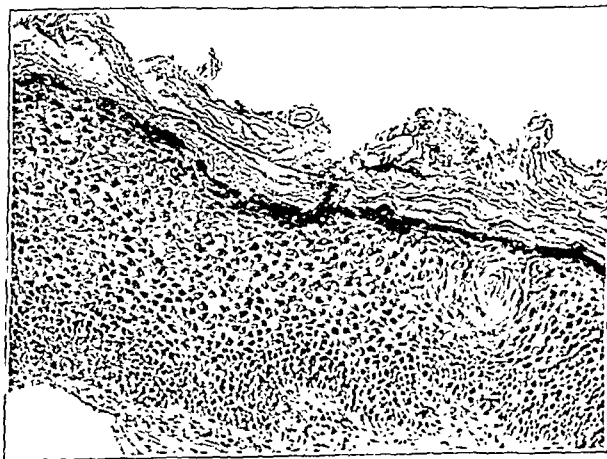


Fig. 5.—Intra-epithelial carcinoma, without invasiveness but with loss of normal stratification, hyperkeratosis, an attempt at pearl formation and definite anaplastic cell changes, with frequent mitosis. This picture is often spoken of as Bowen's disease of the cervix, from an assumed analogy with Bowen's disease of the skin.

rence of carcinomatous changes in polypi justifies the statement that polypi are precursors of cancer.

These simpler grades of leukoplakia are much more logically explained, it seems to me, as instances of the differentiation anomalies which are so commonly seen throughout the genital tract, as I have discussed in a

6. Meyer, R., in Henke, Friedrich, and Lubarsch, Otto: *Handbuch der speziellen pathologischen Anatomie und Histologie* 7:182, 1934.

previous paper.⁷ Patches of squamous epithelium may be found on the endometrium, and endometrial islands may be found in the tubal mucosa. Similarly it might be expected that in some cervixes one might find islands in which the epithelium is more highly differentiated than is normal for the region (prosoplasia), with hyperkeratosis as an evidence of this. A good analogy may be seen in the amniotic epithelium, which, like the skin, is of ectodermal origin. The so-called amniotic caruncles are plaques of skinlike appearance which may be found in the normally cuboidal epithelium of the amnion, representing just such a differentiation anomaly as I believe may occur in the case of leukoplakia of the cervix.

Between Hinselmann's rubric II and rubric III there is a very sharp gap, for in the latter one finds evidences of cell anaplasia quite like those of cancer, though invasiveness is lacking. It is this group in which we have been most interested in our own laboratory. In general, the picture corresponds to what many have called intra-epithelial carcinoma, carcinoma in situ, carcinoid, or Bowen's disease. In this condition the epithelium shows anaplastic changes quite comparable to those which are ordinarily associated with cancer, but there is no penetration through the basement membrane. It is significant that exactly the same picture of noninvasive epithelial carcinoma is often to be seen at the growing margin of very frank cancer.

The latter observation lends support to the view held by many that intra-epithelial carcinoma is genuine cancer, although the cells have not yet entered on the career of invasiveness which is the chief characteristic of cancer as one ordinarily sees it. From the relatively small amount of cervical material of this sort as yet available for study, it would seem that in this preinvasive stage the lesion is readily curable by very simple conservative measures. Moreover, there may apparently be a very definite and perhaps a long pause or lag between the intra-epithelial and the invasive phases of the process. This would seem likely if one harks back to the example of Bowen's disease of the skin,⁸ in which the lesion may be noninvasive for many years, with the development then of invasiveness and metastasis.

Intra-epithelial carcinoma of the type I have been describing is a rather rare lesion in the cervix, and the greatest caution is necessary in its diagnosis. The chief hazard comes from incompleteness of study, and I have on a number of occasions, in lesions at first thought to belong to this category, found on the study of other sections that actual cancer was present close by. In the study of all such early lesions the importance of numerous, preferably serial, sections cannot be too strongly emphasized.

No discussion of this general subject would be complete without stressing the value of biopsy. In many instances not even the most expert gynecologist can determine the presence or absence of cancer by clinical methods alone. Most cases of very early cancer are either accidental finds, perhaps in patients with no symptoms at all, or they are revealed by the careful investigation of cervixes that are regarded merely as suspicious. In some of these there is perhaps a leukoplakic area, but more often one's suspicions are aroused by a small area of induration with very slight surface ulceration, or a firm area of rather granular appearance that bleeds on slight touch, or a finely vegetative area

which likewise shows marked vascularity. It is such lesions as this for which one must search the cervix, and not merely the large excrescent cauliflower growths or the various indurated or ulcerative lesions that characterize the late lesion, where diagnosis is about as easy as the prognosis is unfavorable.

In these late stages the microscope could almost be dispensed with in diagnosis, but in the early group mentioned previously it is the final arbiter. Biopsy is here of crucial value, and it is essential that the tissue for examination be obtained directly from the area under suspicion. If this is not done the pathologic report is worse than useless, for a negative report will lull the clinician into a false security while a genuine cancerous lesion may be progressing a short, or perhaps a considerable, distance from the biopsy wound.

The pathologist can be expected to find cancer only if it is present in the tissue submitted to him for examination, so that the important responsibility of proper biopsy belongs to the clinician, who may employ any

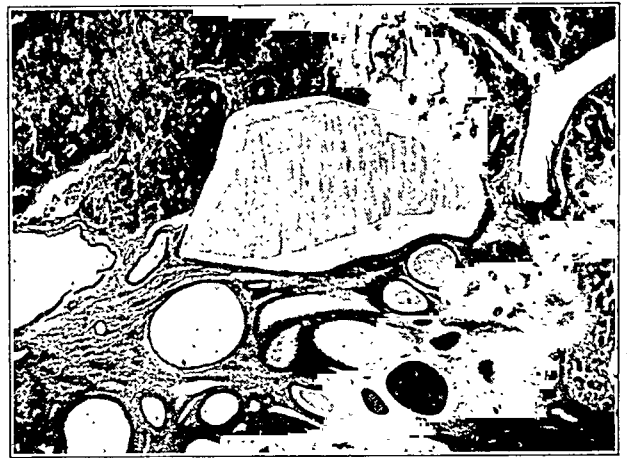


Fig. 6.—Adenocarcinoma of the uterus, with hyperplasia of endometrium adjoining it, in a patient aged 59.

one of several methods to obtain tissue from the cervix. When the latter is easily accessible I prefer a sharp scalpel, with cauterization of the wound edges with the electrocautery. When the cervix is high up and the vaginal canal is long and narrow, the scalpel is apt to be awkward and unsatisfactory, and in these the punch is a very satisfactory instrument for biopsy. Others prefer the cautery knife or the endothermy knife for this purpose, though, especially with the former, the tissue is apt to be partially cooked, so that the resulting sections may not be so satisfactory.

Little need be said as to the supposed dangers of biopsy, for, even though these were real, the procedure would still be justified because of the indispensability of the information that it yields and that can be obtained in no other way. As a matter of fact, there is no worth while evidence to indicate that biopsy of the cervix is fraught with any extra hazard to the patient.

One other point concerning the rôle of the pathologist is worthy of special stress. In dealing with very early lesions it should be borne in mind that evidence of cancer may be lacking in one part of the biopsy tissue and be present in another, so that serial section is of great importance. The entire block should be sectioned, and sections at various levels should be stained and examined so that nothing of importance will be overlooked. I have more than once been inclined to the

7. Novak, Emil: *Am. J. Obst. & Gynec.* 24: 635-655 (Nov.) 1932.
8. Bowen, J. T.: *J. Cutan. Dis.* 30: 241-255, 1912.

diagnosis of precancerous lesions, such as Bowen's disease or intra-epithelial noninvasive carcinoma, only to find in other sections *indubitable evidence of invasive carcinoma*.

In this connection I have in a recent paper called attention to the frequent advisability, more especially in women beyond the child-bearing period, of cervical amputation rather than mere biopsy when there is a suspicion of an early malignant condition. By this plan the whole cervix is made available for complete pathologic study. If cancer is revealed, the appropriate radiotherapeutic measures can be instituted; if not, the procedure may be considered to have carried with it a considerable measure of prophylactic value.

PRECANCEROUS LESIONS OF THE CORPUS UTERI

Aside from the very doubtful rôle of myomas in predisposing to endometrial carcinoma, there has been little discussion as to lesions that might be considered as precancerous in this portion of the uterus. Within the past few years, however, considerable evidence has accumulated to indicate that estrogenic substances may exert a markedly carcinogenic tendency, particularly in those organs which, like the breast and the uterus, are normally under the physiologic control of these estrogenic principles.⁹ This evidence has been summarized in a recent paper by Yue and myself,¹⁰ based on the study of 864 cases of hyperplasia of the endometrium and 104 cases of adenocarcinoma of the uterine body.

The accepted cause of hyperplasia is a persisting hyperestrinism, so that it seemed of interest to determine whether there is any relation between this lesion and adenocarcinoma. Without going into details, I may say that no such relation is demonstrable during the reproductive epoch, when corporeal carcinoma is relatively infrequent and hyperplasia very common. On the other hand, in a surprising proportion of cases of women well beyond the menopause, hyperplasia and adenocarcinoma were found to coexist in one and the same uterus.

That hyperplasia may occur long after the menopause has been shown not only by our own studies but also by those of others (Breipohl, Schröder), though one can only speculate as to the source of the estrogenic stimulation at this period of life, when the ovaries have presumably lost their internal secretory function. But when the endometrium of the postmenopausal woman is subjected to prolonged and persistent estrogenic stimulation, not only is hyperplasia produced but there is apparently a strong tendency to the development of actual cancer. In fully twenty-five of our cases, for example, such pictures as that shown in figure 6 are found, with hyperplasia and carcinoma existing side by side and often with transition pictures between the two lesions.

This is not to say that the hormone stimulus actually produces the cancer, the suggestion rather being that an abnormal estrogenic stimulus acting on a tissue which by age and other unknown factors is rendered prone to cancer development exerts a strong predisposing influence, perhaps just as does any form of chronic irritation. In view of recent studies showing the close relationship of estrogenic and carcinogenic substances and the reports of the actual production of what is apparently genuine carcinoma by the injection of estrogenic principles, it is not impossible that the relation

between the hormone-produced hyperplasia and cancer is a much more direct one, though present knowledge does not warrant such a conclusion. For a fuller discussion of this problem, however, I may refer the reader to our recent paper on the subject.

SUMMARY

For the present, the most promising line of advance in the cancer campaign is the effort to increase the proportion of early cases submitted to proper treatment. Important though popular education unquestionably is, there is still a great opportunity for education within our own ranks, along lines which have been indicated in this paper.

The term "early cancer" is a very relative one, and the lesions that I have discussed have been chiefly the earliest phases of the disease, as well as certain lesions which histologically are of a borderline type. Diagnosis in this group concerns the gynecologic specialist and the pathologist much more than the general practitioner, though the latter should train himself to recognize merely suspicious lesions as well as those characterizing actual cancer.

Recent intensive studies on the cervix have focused attention on leukoplakia as a possible precursor of cancer. The term is a rather broad one, embracing various degrees of hyperkeratosis, increased cell activity and even anaplasia. In many cases there is no histologic suggestion of a malignant condition, and the evidence that such lesions are important precursors of cancer is very unconvincing. In the leukoplakia group, however, many include also lesions in which the epithelial anaplasia is indistinguishable from that of cancer, though there is no invasiveness. Do these cases of carcinoma in situ, carcinoid, intra-epithelial cancer or Bowen's disease of the cervix represent preinvasive phases of genuine carcinoma? I believe that they do, though a long interval may elapse before the second and more decisive phase of malignancy, the invasiveness, may manifest itself.

The evidence is quite convincing that cancer is preceded by a preinvasive stage, but there is still much doubt as to whether the reverse is true; that is, whether the so-called preinvasive stage inevitably becomes cancer. The pathologic feature that determines clinical malignancy is invasiveness, and hence on this point I do not agree with Schiller, who does not hesitate to diagnose cancer even in the absence of invasiveness, although he concedes that even many years may elapse before invasiveness may—or may not—develop. But during this preinvasive stage the lesion is still clinically a benign one and hence should be considered a precursor of cancer rather than an early stage of the latter. If Schiller's concept is true, the life history of cancer of the cervix might be of many years' duration, the traditional invasive phase being merely a terminal one. During the preinvasive stage the lesion might be a practically invisible one, with no tendency to metastasis at this stage, during which it can be cured by simple conservative procedures. But malignancy is, after all, a clinical and not a pathologic attribute, and it would seem paradoxical to apply the term cancer to lesions in this preinvasive stage. Something else is necessary before they can actually become clinically malignant, and the pathologic evidence that this final decisive step has been taken is furnished by the microscopic demonstration of invasiveness.

In the study of borderline cases and in the search for very early cancer, the colposcope and the Schiller tinc-

9. Loeb, Leo: Glandular Physiology and Therapy, Chicago, American Medical Association, 1935, chapter XIII, pp. 173-192.
10. Novak, Emil and Yue, E.: Am. J. Obst. & Gynec., to be published.

torial test are of considerable value; but they are handicapped by various limitations, which have prevented their more general adoption. Both methods, however, are valuable assets in any clinic, because they stimulate an interest in intensive study of the cervix and also unquestionably help in the recognition of precancerous lesions and occasionally of early cancer itself.

So far as precancerous lesions of the uterine body are concerned, attention has been called to the not uncommon observation of hyperplasia long after the menopause and the not infrequent coexistence of hyperplasia and adenocarcinoma in postmenopausal women. This suggests that postmenopausal hyperestrinism, whatever its cause may be, may be a precancerous factor of some importance.

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THE USE OF STAPHYLOCOCCUS TOXOID IN THE TREATMENT OF CHRONIC OSTEOMYELITIS

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On the wings of the now classic tragedy of Bundaberg, Australia,¹ came a new method of approach in the therapy of staphylococcal infections. The immediate subsequent investigations by Burnet and his associates,² and those of Dolman,³ Pantón, Valentine and Dix,⁴ Parish and Clark⁵ and others have enriched our knowledge of the immunology of staphylococcal infections with special reference to their toxins, toxoids and antitoxins. These workers demonstrated that active immunization can be induced by the administration of staphylococcus toxin. They furthermore developed staphylococcus toxoid, which is staphylococcus toxin detoxified with formaldehyde, capable of bringing about similar responses in the living animal without the limitations and dangers incidental to the use of toxin. This induced active immunity has in some instances been sufficient to enable rabbits to withstand injections of definitely lethal doses of living toxigenic staphylococci or staphylococcus toxin. Dolman⁶ carried this work further by demonstrating the antigenicity of toxoid in a series of six normal human volunteers.

In view of these experimental demonstrations of active immunization of animals and human beings it appears theoretically possible to attack staphylococcal infection by means of subcutaneous administration of toxoid. Dolman⁶ concluded that toxoid therapy "might result in a favorable modification, and perhaps cure . . . with some degree of protection against similar infections in the future." To Holman⁷ it seemed "a perfectly logical procedure to build up antitoxin [by

the use of toxoid] as a defense mechanism if it is reasonably certain that no abnormal or harmful sensitization will later result."

The therapeutic application of staphylococcus toxoid has been carried out by a number of investigators.⁸ With a few exceptions their efforts have been largely confined to superficial staphylococcal infections and the reported results have in general been decidedly favorable. Cures were reported and recurrences, when they occurred, were often milder than the original infections. The enthusiasm of several authors led them to the belief that toxoid therapy is far superior to any other method of treatment in superficial staphylococcal infections. In contrast to these favorable reports are the unsatisfactory experiences of Kindel and Costello⁹ and Cornbleet and Rattner.¹⁰ Dolman¹¹ attributed their unfavorable results to the use of a monovalent toxoid and pointed to the importance of using a polyvalent preparation from several highly toxigenic strains of staphylococci.

The therapeutic application of toxoid in fifty-nine cases of chronic and subacute staphylococcal osteomyelitis was recently reported by Dolman.¹² Though he recognized the special difficulties confronted in the evaluation of any method of therapy in chronic osteomyelitis, he nevertheless reached the conclusion that, "despite all these difficulties, distinctly favorable results appear in general to attend the use of staphylococcus toxoid in chronic osteomyelitis." Ramon and his collaborators^{8h} have very recently reported "encouraging" results in cases of osteomyelitis under toxoid therapy. They felt, however, that their experience was too short to warrant the final judgment of the therapeutic value of toxoid in this type of case.

Experiences at the Hospital for Joint Diseases have led me to believe that with thorough surgery followed by maggot therapy we can in a high percentage of suitable cases bring about a local healing of such a nature that relighting of the processes at the treated sites will in all probability not occur. This belief is based on the character of the healing that takes place, which I have described elsewhere.¹³ In view of our

8. These include:

- (a) Dolman.⁶
- (b) Pantón, P. N., and Valentine, F. C. O.: Staphylococcal Toxin, *Lancet* 1: 506 (March 5) 1932.
- (c) Connor, J. I., and McKie, M.: Treatment of Superficial Staphylococcal Infection by Toxoid, *Brit. J. Dermat.* 46: 20 (Jan.) 1934.
- (d) Parish, H. J.; O'Meara, R. A. Q., and Clark, W. H. M.: The Clinical Investigation of Staphylococcal Toxin, Toxoid and Antitoxin, *Lancet* 1: 1054 (May 19) 1934.
- (e) Dolman, C. E.: Clinical Uses of Staphylococcus Toxoid, *Lancet* 1: 306 (Feb. 9) 1935.
- (f) Murray, D. S.: Staphylococcus Toxoid: A Clinical Trial, *Lancet* 1: 303 (Feb. 9) 1935.
- (g) Ramon, G.; Bocage, A.; Richou, R., and Mercier, P.: L'anatoxine staphylococcique et son emploi dans le traitement spécifique de certaines affections dues au staphylocoque, *Presse méd.* 43: 1137 (July 17) 1935.
- (h) Ramon, G.; Bocage, A.; Mercier, P., and Richou, R.: L'anatoxine staphylococcique et son emploi dans le traitement des affections dues au staphylocoque: Nouveaux résultats, *ibid.* 44: 185 (Feb. 1) 1936.
- (i) Nélis, P.: Une nouvelle thérapeutique des staphylococcies: La vaccinothérapie par l'anastaphylotoxine, *ibid.* 43: 1141 (July 17) 1935.
- (j) Gilchrist, J. A., and Wilson, M. J.: Staphylococcal Infections in Diabetes Mellitus, with Special Reference to the Use of Staphylococcus Toxoid, *Canad. M. A. J.* 30: 353 (April) 1934.
- (k) Gilchrist, J. A., and Wilson, M. J.: The Clinical Use of Staphylococcus Toxoid, *ibid.* 33: 292 (Sept.) 1935.
- (l) Whitby, L. E. H.: The Modern Treatment of Staphylococcal and Pneumococcal Infections, *Lancet* 2: 779 (Oct. 6) 1934.
9. Kindel, D. J., and Costello, M. J.: Staphylococcus Toxoid in the Treatment of Pustular Dermatoses, *J. A. M. A.* 102: 1287 (April 21) 1934.
10. Cornbleet, Theodore, and Rattner, Herbert: Staphylococcus Toxoid, *J. A. M. A.* 102: 1780 (May 26) 1934.
11. Dolman, C. E.: Staphylococcus Toxoid in the Treatment of Pustular Dermatoses, *J. A. M. A.* 102: 1699 (May 19) 1934.
12. Buchman, Joseph, and Blair, J. E.: Maggots and Their Use in the Treatment of Chronic Osteomyelitis, *Surg., Gynec. & Obst.* 55: 177 (Aug.) 1932. Buchman, Joseph: The Rationale of the Treatment of Chronic Osteomyelitis, with Special Reference to Maggot Therapy, *Ann. Surg.* 99: 251 (Feb.) 1934. Pomeranz, M. M.: Peculiar Regeneration of Bone Following Maggot Treatment of Osteomyelitis, *Radiology* 19: 212 (Oct.) 1932.

From the Service of Dr. Samuel Kleinberg, Hospital for Joint Diseases.

1. The disaster occurred at Bundaberg, Queensland, in January 1928, when twelve of twenty-one children who had been injected with a contaminated diphtheria toxin-antitoxin mixture without preservative died within twenty-four hours or so from acute staphylococcal septicemia.

2. Burnet, F. M.: The Exotoxins of *Staphylococcus Pyogenes Aureus*, *J. Path. & Bact.* 32: 717 (Oct.) 1929; The Production of Staphylococcal Toxin, *ibid.* 33: 1 (Jan.) 1930; The Interactions of Anatoxin and Antitoxin, *ibid.* 34: 471 (July) 1931. Burnet, F. M., and Freeman, Mavis: The Process of Formal Detoxication: Experiences with Purified Staphylococcal Toxin, *ibid.* 35: 477 (July) 1932.

3. Dolman, C. E.: Pathogenic and Antigenic Properties of Staphylococcus Toxin, *Canad. Pub. Health J.* 23: 125 (March) 1932.

4. Pantón, P. N.; Valentine, F. C. O., and Dix, V. W.: Staphylococcal Infection and Antitoxin Treatment, *Lancet* 2: 1180 (Nov. 28) 1931.

5. Parish, H. J., and Clark, W. H. M.: Staphylococcal Toxin and Antitoxin, *J. Path. & Bact.* 35: 251 (March) 1932.

6. Dolman, C. E.: Treatment of Localized Staphylococcal Infections with Staphylococcus Toxoid, *J. A. M. A.* 100: 1007 (April 1) 1933.

7. Holman, W. L.: Studies on Staphylococci, *Am. J. M. Sc.* 189: 436 (March) 1935.

experiences with local therapy and in view of the promising reports of the immunologic therapy previously described we were fired with the hope of being able (1) to immunize these unfortunate patients against future exacerbations of old lesions, (2) to prevent new metastatic lesions in bone and soft tissues and (3) to expedite the healing of existing lesions.

CLINICAL MATERIAL

With these ideas in mind, we began in the latter part of December 1934 to administer staphylococcus toxoid in a group of unselected cases of chronic staphylococcal

TABLE 1.—Age Distribution

Age	Patients
First decade	3
Second decade	13
Third decade	9
Fourth decade	4
Fifth decade	7
Sixth decade	2
Total	38

osteomyelitis. This group consisted of thirty-eight patients ranging in age at the time of observation from 7 to 55 years, as shown in table 1. The duration of the disease varied from two months to fifty-four years before the onset of toxoid therapy, with more than half of the cases lasting six years or less (table 2).

Only a few of these patients had only one prior operation. The remainder had had many operative procedures; one patient had as many as twenty-two on one tibia over a period of eighteen years without ever obtaining even a temporary closure of the wound. Thirty of these cases were of hematogenous origin, four were the result of compound fractures, one was subsequent to an infection following an open operation performed elsewhere for a simple dislocation of an astragalus, two were the result of secondary infections following operations for tuberculous knees, and one was subsequent to an open operation for nonunion of a fracture in a syphilitic patient with tabes dorsalis. The etiologic agent in all cases was proved to be *Staphylococcus aureus*. The status of the patients at the beginning of toxoid therapy is shown in table 3.

TABLE 2.—Duration of Osteomyelitis at the Beginning of Toxoid Therapy

Duration	Cases
1 year or under	3
1-5 years	19
6-10 years	4
11-15 years	5
16-20 years	3
21-25 years	2
44 years	1
54 years	1
Total	38

All these patients, save for a few exceptions, had previously been operated on elsewhere and had various types of after-care including the classic Carrel-Dakin and Orr methods. These cases, which presented ulcers, had previously had pinch grafts or skin plastic operations with or without temporary healing.

SURGICAL THERAPY

During the course of the toxoid therapy those cases presenting frank bone lesions were subjected to radical saucerization operations when anatomic topography permitted. The great majority of these patients were

subsequently treated with maggots. A few of these were treated with "maggot enzyme, Lederle,"^{12a} and several were treated with allantoin supplied by the Bureau of Entomology of the U. S. Department of Agriculture.¹³ Chronic skin ulcers were treated with live steam, cod liver oil ointment, as described by Loehr,¹⁴ or with injections of allergic serums according to the Walzer¹⁵ technic.

TOXOID THERAPY

Toxoid Used.—We used throughout this investigation a commercial stock of polyvalent staphylococcus toxoid-Lederle, which was supplied through the courtesy of the manufacturer. The producer described this preparation in a folder accompanying each vial as follows: "Detoxification of the toxin is effected with formaldehyde. It is carried to the point where the intracutaneous injection of 0.1 cc. into the skin of a susceptible rabbit will no longer cause necrosis." It should be noted that the manufacturer makes the claim that its product is valuable in stimulating antitoxin production. The preparation consisted of two dilutions: dilution 1 contained 100 "units" per cubic centimeter and dilution 2 contained 1,000 "units" per cubic centimeter. The manufacturer described the "unit" of staphylococcus toxoid as "the toxoid obtained from a

TABLE 3.—Status of Patients at the Beginning of Toxoid Therapy

Status at Beginning of Treatment	Cases
Completely healed	6
Frank bone lesions	23
Residual superficial skin ulcerations with no bone involvement	6
Superficial soft tissue abscess subsequent to a previously healed bone lesion	1
Soft tissue sinuses with no bone involvement	2

dermonecrotizing unit of toxin (the least amount of toxin which on intradermal injection in a susceptible rabbit will produce an erythema with a central necrosis at least 5 × 5 mm. in diameter").

Dosage.—The dosage of the toxoid administered was the following: The first dose of 0.2 cc. of dilution 1 was increased by 0.2 cc. with each subsequent injection until 1 cc. of dilution 1 was reached. The next dose was 0.2 cc. of dilution 2 and increased by 0.2 cc. with each dose until the final dose of 1 cc. of dilution 2 was reached. The dose was then kept at that level for subsequent injections. All injections were made subcutaneously. At times when a patient presented a severe local reaction the same dose or a slightly smaller dose was administered on the subsequent occasion. The maximum dose was never over 1 cc. of dilution 2, and no modifications were made because of the patient's age. The time interval between injections varied from two to ten days and averaged about three days. An average of 17.9 injections was given per patient over an average of forty-five days. The minimum number of doses was five, while the maximum was thirty. The minimum duration of toxoid therapy in any case was twenty-two days, while the maximum was 130 days. The average total number of "units" administered was

12a. An experimental product obtained from Dr. E. F. Roberts of Lederle Laboratories, which was not put on the market.

13. Robinson, W.: Stimulation of Healing in Nonhealing Wounds by Allantoin Occurring in Maggot Secretions and of Wide Biological Distribution, *J. Bone & Joint Surg.* 17:267 (April) 1935.

14. Loehr, W.: Ueber die, (mit und ohne Gipsverband) bei frischen Ver, 21) 1934.

15. Walzer, A. L., and Walzer, Matthew: Urticaria: II. The Experimental Wound Produced on Normal Skin Through Internal Chan-
cel, *A. J. Derm.* 17:659 (May) 1928.

10,515. Three patients received less than 1,000 "units," while the maximum total dosage in any case was 24,300 "units."

SEROLOGIC CONTROL

The course of immunization of each patient was followed in the laboratory by the determination at varying intervals of the antihemolysin (antitoxin?) titers of the patient's serum. An initial antihemolysin titration was done in each case prior to the beginning of toxoid therapy, and from two to nine titrations were done during and after the course of treatment. The average number of titrations for each patient was five.

Titration.—The antihemolysin titrations were originally done by determining that dilution of serum which just inhibited hemolysis of a twice washed 1 per cent suspension of rabbit erythrocytes by one minimum hemolytic dose of staphylococcus toxin, after incubation for one hour at 37 C. Subsequently a sample of the international standard staphylococcus antitoxin was obtained through the courtesy of Dr. Hartley of the National Institute for Medical Research, London,¹⁶ and after suitable preliminary tests our serums were titrated in terms of that standard. Some of the serums were titrated directly against the standard while the titers of others were transposed to international units from the titers obtained by the original method. The titers recorded in this paper are in terms of the international unit.

The technical details of the titrations and of the preparation and standardization of toxin used in titrating in the terms of the international standard antitoxin have been presented in detail in a separate communication by Blair and Hallman.¹⁷

SEROLOGIC RESULTS

Titer Prior to the Administration of Toxoid.—Blair and Hallman¹⁸ of the laboratory of the Hospital for Joint Diseases have already demonstrated in a series of eighty patients suffering from chronic osteomyelitis that the titers of serums of persons suffering from this disease generally fell prior to the administration of toxoid therapy within the range established as normal; namely, one international unit or less. Only one fifth of the serums of these individuals had an initial titer of three or more units, which is definitely above normal. The results obtained in the present series of cases of osteomyelitis are similar to those already reported by Blair and Hallman.¹⁸ This is in direct contrast to those of Dolman,¹⁹ Murray²⁰ and Gross¹⁹ in a comparable group of cases. These authors found that the titers in this type of case were markedly above normal.

Titer After Administration of Toxoid.—We found a definite rise in titer in all of the thirty-eight cases following the administration of staphylococcus toxoid. This confirms the observations of Dolman and Murray in cases of osteomyelitis and of others in superficial staphylococcal infections. These workers have found that the titer increased usually from five to ten fold subsequent to the administration of from four to eight injections of toxoid.²⁰ In our series of thirty-eight

cases the antihemolysin titers of thirty-one were increased from two to ten fold while the titers of nineteen were increased from five to ten fold, and the titers of the serums of the remaining seven patients were increased from twelve to thirty-four times. In every instance, however, the number of injections necessary to raise the titer of serums to their maximum was greater than has been reported by others. The maximum titer obtained in the serums of two patients was 28.8 international units. This represented an increase of 4.5 and 7 times the initial titers. The next highest titer was 17.7 units.

It had been previously observed that the titers obtained following toxoid therapy do not remain at the maximum level but drop to a level which is usually higher than the initial titer.²⁰

We found a similar drop in titers. This occurred during the course of injections in nine patients and after the cessation of toxoid therapy in the remaining twenty-nine cases. The titers of four patients dropped to a level lower than the initial titers; the titers of two dropped to a level equal to the initial titers, and the titers of the remaining thirty-two dropped to a level higher than the original titers. The level finally reached in the majority of instances was from two to eight times higher than the initial titer. We found no relationship between the maximum titers obtained and the final levels to which they fell. Neither was there any relationship between the extent of the rise of titers and the final levels. We have found that in general the higher titers fell somewhat more precipitately than the lower titers.

Summary.—From the foregoing observations it may be concluded that:

1. The initial titer in the majority of our cases of chronic osteomyelitis was within the normal range of 1 international unit or less.

2. Subsequent to the administration of toxoid, the titers increased from five to ten fold or more in twenty-six cases and from two to ten fold in thirty-one of thirty-eight cases.

3. These results are similar to those reported in various types of staphylococcal infections, including osteomyelitis.

4. The number of injections of toxoid necessary to raise the titers to the maximum ranged from five to thirty and averaged 17.9. This is in contrast to other reported observations in which from four to eight injections brought the titers to a maximum level.

5. The titers in nearly all cases fell from the maximum level, which was above the initial titer.

6. The higher titers appeared to fall somewhat more precipitately than did the lower titers.

Comment.—Murray²⁰ suggests on the basis of the high initial titer he found in seven cases of osteomyelitis in which the average was 11.7 units in contrast to the average of 0.96 unit in 108 cases of other than osteomyelitic staphylococcal infections that this titration might prove of diagnostic value in cases of osteomyelitis in which there is doubt as to the causative agents. Our experiences are not in agreement with this conclusion, for, as has already been pointed out by Blair and Hallman,¹⁸ in only 20 per cent of eighty osteomyelitic serums was the titer above the normal. Furthermore, a similar ratio of high titers was found in staphylococcal infections other than osteomyelitis. On the basis of these data the accuracy of this diagnostic procedure would be rather inadequate.

16. Hartley, P. H. S., and Smith, M. L.: A Proposed International Standard for Staphylococcus Antitoxin, Quart. Bull. Health Organ., League of Nations, January 1935, p. 68.

17. Blair, J. E., and Hallman, Frances A.: Staphylococcal Antihemolysin: Titers Following Staphylococcal Toxoid in Chronic Osteomyelitis, Proc. Soc. Exper. Biol. & Med. 34: 637-642 (June) 1936.

18. Blair, J. E., and Hallman, Frances A.: Staphylococcal Antihemolysin in Osteomyelitis and Other Staphylococcal Infections, Proc. Soc. Exper. Biol. & Med. 33: 382 (Dec.) 1935.

19. Gross, H.: Ueber die Brauchbarkeit und den diagnostischen Wert der Antistaphylolysinreaktion, Klin. Wchnschr. 12: 907 (June 10) 1933.

20. Dolman,¹⁹ Murray.²⁰

CLINICAL RESULTS

We find ourselves in agreement with Dolman that the evaluation of the effect of toxoid therapy or for that matter any therapy of chronic osteomyelitis is beset with many pitfalls because of the inherent characteristics of the disease.

Systemic and Local Reactions to Injections of Toxoid.—The first prerequisite of a therapeutic measure is that it should produce no harmful effects as a result of its application. In eleven of our thirty-eight patients and in two normal individuals who have submitted themselves to toxoid injections there were definite local and systemic reactions. The local reaction consisted of pain, tenderness and at times rather extensive areas of induration and redness, one of which necessitated local therapy in the form of wet dressings. One patient, following an injection, had a rise in temperature for several days. This patient had no active lesions at that time. One patient complained of "chilly" sensations on evenings following injections. A very fair number of these individuals complained of malaise, lethargy, fatigue, sensations of not feeling well and loss of appetite and, on several occasions, loss of weight. Those who complained of systemic symptoms did not look well, and a few of them had rings under the eyes. In several instances we felt obliged to discontinue toxoid therapy because of these symptoms. All these patients invariably reported sensations of well being and in a few instances of gain in weight after the cessation of the injections. The two normal individuals who submitted themselves to injections of toxoid experienced mild to severe local reactions, which were sometimes accompanied by fatigue.

A review of several reports of other investigators confirms our observations. Murray⁸⁷ stated that out of 116 adequately treated cases ten presented local reactions, seven general reactions, twelve lethargy, and sixteen exacerbations. The significance or the character of the latter group was not amplified. Dolman reported that his group of normal laboratory workers presented reactions after toxoid injections varying "from the slightest local tenderness to a painful, red, swollen arm, with mild general malaise on the day following the injection." These reactions were, however, not sufficient to preclude the advisability of continuing with the toxoid. Dolman⁸⁸ further reported that "many" patients had slight local reactions; in others it was more marked and sometimes lasted for three days. In 10 per cent there was mild headache, dizziness or nausea and fatigue. Very occasionally there was more marked swelling, slight fever and illness for a day or two. There have, however, been no serious reactions to toxoid reported.

In view of these observations, injections of toxoid are not altogether without ill effects, and occasionally the results may be somewhat disturbing. It should be recalled, however, that the administration of other biologic preparations is often accompanied by a reaction of much the same order as is encountered following the injection of staphylococcus toxoid. Nevertheless, if toxoid therapy is proved of definite value such untoward results would have to be tolerated.

Efficacy of Toxoid.—Further consideration of our data reveals that in eighteen of our thirty-eight cases new lesions developed during or soon after the course of toxoid injections. Two of these cases necessitated resaucerization of their affected bones. In one of these this procedure had to be applied when the patient's

antihemolysin titer was near its maximum level of 28.8 international units. Another patient, with a persistent sinus which could not be opened wide because of anatomic considerations, developed an extensive and long lasting pyoderma and several extensive phagedenic ulcers on the affected as well as on the opposite limb, notwithstanding that he received 24,300 "units" of toxoid and that his antihemolysin titer had increased sixfold. In another case presenting multiple soft tissue and bone abscesses involving practically every part of the body, many new foci have developed up to the present time, notwithstanding the administration of 21,300 "units" of toxoid and a fivefold increase in the antihemolysin titer. In an additional instance toxoid did not prevent a mid thigh amputation for a post-operative staphylococcal infection of a knee following an arthrodesis for tuberculosis even though the antihemolysin titer had risen to four times the original titer. Subsequently the titer rose sixteenfold but the healing of the stump was delayed over a period of three months because of a persistently stubborn infection of the operative wound. The new lesions in most of the other cases consisted of local abscesses, several of which occurred in instances in which there was no evident active lesion at the time of onset of toxoid therapy. Erosions of epithelium in healed cases of osteomyelitis were to all appearances not influenced by the action of toxoid.

I operated on a series of about 150 patients, who were submitted to maggot therapy. The only two post-operative mortalities sustained in this series occurred in individuals who were under toxoid therapy. I do not by any means attribute these deaths to the toxoid; nevertheless, I feel obliged to mention these instances to indicate the inadequacy of the toxoid to modify the course of these patients for the better. The following report is of special interest, for it presents an ideal instance for the testing of the efficacy of toxoid therapy:

CASE 1.—A white boy, aged 7 years, was admitted to the service of Dr. Samuel Kleinberg, Oct. 29, 1930, with an acute hematogenous osteomyelitis of the lower end of the tibia of several days' duration. The part was immediately incised and drilled, draining a small quantity of pus. The Orr therapy was instituted. The patient recovered from the acute phase and went on to the subacute phase of the disease. Dec. 3, 1934, the antihemolysin titer was 4.4 international units. Toxoid was then administered. After four injections the titer rose to 8.8 units. After nine additional injections, bringing the total dosage up to 5,390 "units" of toxoid, the titer rose to 15.5 international units. The last injection was administered Feb. 11, 1935; the total dosage of toxoid was 9,390 "units." On the 13th of the same month the antihemolysin titer fell to 14.4 international units and March 27 it had dropped to 8.8 international units. Notwithstanding the very satisfactory serologic response to toxoid therapy, the local lesion developed during the course of toxoid therapy into a very extensive and progressive involvement of the lower half of the tibia.

Further studies of our data reveal that the original titer had no relationship whatever with the severity or mildness of the local lesion. In addition, the serologic response was not in any way related to the clinical progress of the case. This is true of practically all our cases.

A study of the only other extensive report of toxoid in the treatment of a comparable number of cases of subacute and chronic osteomyelitis, namely that of Dolman,⁸⁸ gives little comfort, for it is a statement of generalities without detailed information to make a clear evaluation possible. Dolman's general impression

is that of beneficial results, yet there is no clinical evidence presented on which he bases that impression. He states: "In a few children with several years' history of chronic osteomyelitis, one or more discharging sinuses healed over for the first time during or soon after the administration of a course of eight injections, and there have since been no recurrences. In other instances, sinuses healed following toxoid treatment but broke down again after a few weeks." These experiences are common occurrences in the hands of all surgeons and hardly form a basis for any special claim for any mode of therapy. Dolman further states: "In a few adults with chronic osteomyelitis of long standing very striking local improvement occurred; other similar cases showed little change." This also appears to me as insufficient for any claim for efficacy in the management of chronic osteomyelitis.

COMMENT

Emphasis should be placed on the lack of correlation between the serologic and the clinical results in this series of cases of chronic osteomyelitis. A high original titer did not indicate a regressing lesion, nor did a low titer indicate a progressing lesion. Furthermore a rise, no matter how great, in titer following toxoid therapy did not signify a healing lesion. Similarly, Dolman's observations of instances which apparently improved while others showed no improvement or, if they showed a primary improvement regressed while under observation, point to the same lack of relationship between the serologic and the clinical results. It therefore would seem rational to conclude from the foregoing that the rise in titer is not the deciding factor in the course of the disease and that the development of immunity against the various toxins encompassed in the toxoid has no effect on the local lesions. Furthermore, the rise in titer seems to indicate merely an inherent ability on the part of the patients to respond to the antigenic stimuli of the toxoid.

Recent studies on the pathogenesis of staphylococci have shown that the action of the invading micro-organism is due to at least two outstanding characteristics: first, the ability to invade the host to produce purulent lesions and, second, to produce toxins. Thus one finds that Burky²¹ has separated pathogenic staphylococci into two groups on the basis of this conception. One group, which he isolated from chronic indurated lesions of the skin and mucous membranes, was highly toxigenic with but little invasive capacity, while another group, which he isolated from "purulent lesions such as styes, osteomyelitis and lung abscesses," was markedly pyogenic with but little toxic producing capacity. Similarly, Gross²² obtained his least toxic staphylococci in cultures from osteomyelitis. Our own studies confirm these results for our observations show that the majority of the strains from chronic osteomyelitis are not highly toxigenic.

A clinical consideration of the great majority of cases of chronic osteomyelitis reveals that the outstanding feature is not the toxemia but the purulent character of the lesion. On the other hand, in instances of acute osteomyelitis in which toxemia plays an important rôle, it may be possible to control the toxemia passively by the administration of antitoxin or actively by immunization with toxoid. This, however, has little effect on the invasiveness of the organism, and pyemia may not

be checked. Thus Parish²³ expresses the opinion that antitoxin "is likely to be the most effective in cases in which toxemia is predominant. . . . It is a rational form of therapy, for theoretically, at least, a serum which neutralizes toxins impedes one of the most important modes of attack by the staphylococcus and thereby aids the natural defenses of the tissues. On the other hand, one has to admit that contradictory reports have been made as to its usefulness. Its effects on the invasive properties of the coccus has not yet been determined, and it cannot be expected to take the place of surgery in such conditions as osteomyelitis, and staphylococcal abscess of the kidney, although it may be a useful adjunct." Burky²¹ has made a similar suggestion; namely, "the fact that an antitoxin can be produced suggests its use in cases of staphylococcus infections. However, the value of such therapy in (Burky's) group II (osteomyelitic) infections awaits proof. . . . it is possible that the pathogenicity of these strains lies in some factor that antitoxin could not neutralize."

This is further borne out by the fact that in infections in which the toxigenicity of the infecting organism plays an important rôle, namely, superficial infections, toxoid therapy has been reported to be of definite benefit. In deep-seated infections, on the other hand, the stimulation of antitoxin (antihemolysin) production, by immunization with toxoid, has produced no beneficial effect on the course of the disease. In fact, some patients developed new lesions during the period of toxoid therapy. It should also be noted in this connection that an individual subject to recurrent furunculosis does not as a rule develop osteomyelitis. The reverse is also true.

It would therefore appear, from the foregoing considerations, that, if an attempt is to be made to induce immunity in patients with chronic osteomyelitis, the effort should be directed toward the establishment of resistance to the invasiveness of the organism rather than to the production of a purely antitoxic immunity.

SUMMARY

1. An attempt was made to immunize a series of thirty-eight patients suffering from chronic osteomyelitis by the administration of staphylococcus toxoid.
2. The progress of immunization was followed by the determination of staphylococcus antihemolysin (antitoxin) in the serums of patients.
3. Subsequent to the administration of staphylococcus toxoid the antihemolysin titers increased in all cases from two to thirty-four times the original titers.
4. The magnitude of the titer gave no indication of the clinical status of the case.
5. A rise in titer did not indicate a regression of the lesion.
6. A rise in titer did not prevent a development of new lesions in eighteen out of thirty-eight cases.
7. A rise in titer did not expedite the healing of existing lesions.
8. A rise in titer did not prevent the progression of old lesions. (Two cases necessitated resaunderization, one case came to amputation, and two ended fatally—the only instances in a series of more than 150 cases).
9. In a discussion of our observations it is suggested that the disappointing results obtained following the administration of staphylococcus toxoid in chronic osteomyelitis may be attributed to the fact that staphy-

21. Burky, E. L.: Studies on Cultures and Broth Filtrates of Staphylococci, *J. Immunol.* 24: 93, 115, 127 (Feb.) 1933; 25: 419 (Nov.) 1933.
22. Gross, H.: Die experimentellen Grundlagen einer Serumtherapie der Osteomyelitis, *Klin. Wchenschr.* 12: 1990 (Dec. 30) 1933.

23. Parish, H. J.: The Present Position of Serology in Relation to the Pathogenic Cocci, *Brit. M. J.* 2: 277 (Aug. 12) 1933.

lococci causing this type of infection are of low toxigenicity and of high invasiveness. I believe that immunization in this type of infection should be directed toward the establishment of resistance to the invasiveness of the organism rather than to the production of a purely antitoxic immunity.

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SYPHILITIC AND NONSYPHILITIC PERSONS ON THE FULTON COUNTY, GEORGIA, RELIEF ROLLS

A COMPARATIVE STUDY

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ATLANTA, GA.

This study was made to determine the prevalence of syphilis among the unemployed in Fulton County, Georgia, on the FERA rolls, and to compare the chief complaints and physical condition of those men found to have syphilis with a given number of those not having syphilis and to determine whether syphilis has any effect on the physical capabilities of a man to earn a livelihood. The presence of the disease was determined by the blood Wassermann test.

It was the rule in Fulton County to subject every applicant applying for federal relief to a physical examination and give a medical work classification before assigning the applicant to any work project. We used a simple uniform medical terminology, exam-

five medical work classifications, depending on the man's physical ability to work. The classifications are as follows:

- Good physical condition; capable of doing hard work.
- Some defect found, such as hernia, hemorrhoids, slight heart trouble, mild hypertension, or debility because of age. Capable of doing light work or indoor work, not requiring much physical strength.
- Some rather marked defect found, as heart trouble, hypertension, marked debility from age, or deformity. Very, very light work.
- Not able to do any kind of work. (There is but little difference between C and D.)

LA, or Leave of Absence. Reserved for those with acute infections, injuries or some malady amenable to treatment in a relatively short period of time, such as colds, tonsillitis, venereal diseases or accidents. A leave of absence could be given a man for as long a time as the physician felt it should normally take him to recover; he would then report back for examination and classification. All men with a urethral discharge and sores on the genitalia were given leave of absence until well.

If the physician assigned a man to a work classification other than A, he stated his reason for so doing under the title of chief pathologic condition on the chart. For example, if a man had a bad heart and the examining physician felt that he was not able to work, he gave him the medical work classification of D and under chief pathologic condition listed "heart."

This study was made by going over the examinations of 545 men, white and colored, who had positive Wassermann reactions and tabulating the number of times each chief complaint occurred, each physical abnormal-

ity, the chief pathologic condition, the blood pressure and the medical work classification, then comparing them to the same tabulation of 1,000 men, white and colored, whose Wassermann reactions were negative. These thousand examinations were selected at random. Men were used because they lent themselves more readily for a complete examination and could be given more definite medical work classifications.

It is noteworthy that 67 per cent of those having syphilis (chart 1) were between 20 and 39 years of age and only 3 per cent were beyond 60, whereas 54

per cent of the nonsyphilitic were between 20 and 39 years and 5 per cent beyond 60 years.

Strangely enough the four major complaints, namely, dizziness, nervousness, headache and heart trouble, were complained of more frequently in the nonsyphilitic (chart 2), nearly all the other complaints being more frequent in the syphilitic. When the actual physical abnormalities were tabulated, however (chart 3), a greater percentage was found in the syphilitic in all except hydrocele and amputations. Two and one-half times as many perfectly normal men were found among those not having syphilis. It must be remembered that many of these physical abnormalities may in no way interfere with a man's ability to work; for instance, an applicant might have some decayed teeth, impaired vision and small varicose veins and still be able to do good work. Under the chief pathologic condition, however, are listed abnormalities of sufficient magnitude either to hinder or to keep a man from working (chart 4); here, as in the physical conditions, one finds much more that is pathologic in persons with syphilis.

Study of the comparative blood pressures from 16 to 19 years and then for each ten year period there-

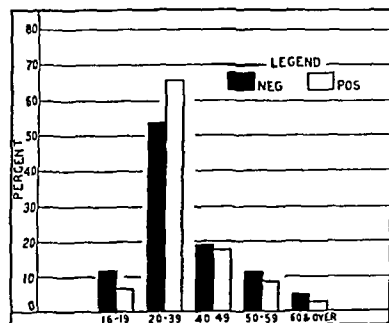


Chart 1.—Comparison by age.

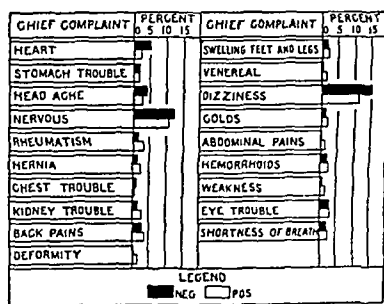


Chart 2.—Comparison by chief complaint.

ining from May 15, 1935, to Nov. 15, 1935, 6,911 applicants for relief rolls, of which number 1,311 had syphilis, an average of 18.9 per cent. In the Negro, 33.8 per cent of the men and 34.5 per cent of the women had positive Wassermann reactions; 7.1 per cent of the white men and 7.3 per cent of the white women had positive Wassermann reactions.

Short medical histories, weights, heights and eye examinations with the Snellen chart were recorded by the nurses on the applicant's chart before he went into the examining room; there he was allowed to undress completely in a booth and come to the examining room when his name was called. Here he was asked if he was in good health or if anything hurt or bothered him. Any complaint made was listed under the title of chief complaint. We then proceeded to give him a thorough physical examination, recording all physical abnormalities. Following this blood for a Wassermann test was taken and the physician immediately gave him one of

This study was made possible through the FERA. Particular credit is given to Mr. W. W. Daniel and his co-workers for their invaluable assistance in the compilation of the statistics and to Mr. Allen Lillywhite, formerly connected with the local administrator, for his timely suggestions; also the administrators of county and state, who cooperated.

after did not reveal anything unusual in the different age groups past 20 years not shown in the composite chart (chart 5). The small 16-19 year age group is interesting because of the low and high pressures in those who are syphilitic and should have more study (chart 6).

Most important of the entire study is the comparative medical work classifications. In the 16-19 year age group (chart 7) one finds a few more of the boys

The 40-49 age group (chart 9) shows a shifting of those having syphilis to light work and leave of absence. The men from 50 to 59 (chart 10) normally carry hard and light work because of their advancing years. It is obvious that a great many men in their late fifties physically sound could not do hard work; hence we find fewer of the syphilitic in these two classifications and more of them in the C, D and LA classes, able to do little or no work.

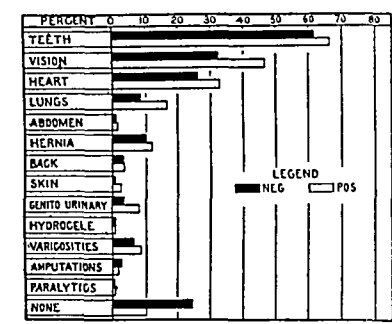


Chart 3.—Comparative physical conditions by medical examination.

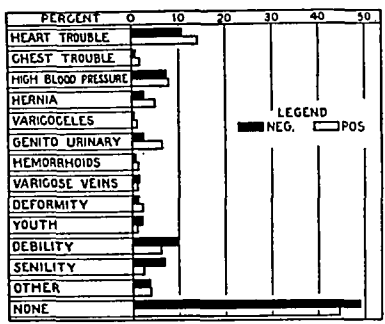


Chart 4.—Comparison by chief pathologic condition.

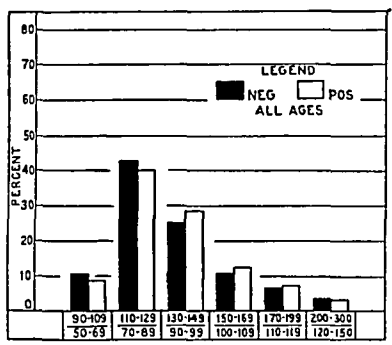


Chart 5.—Comparative blood pressures.

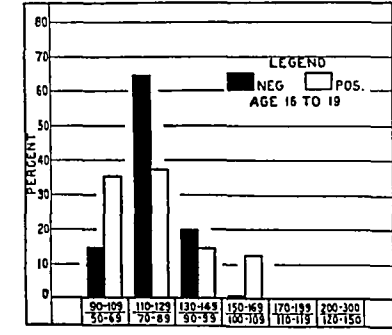


Chart 6.—Comparative blood pressures by age.

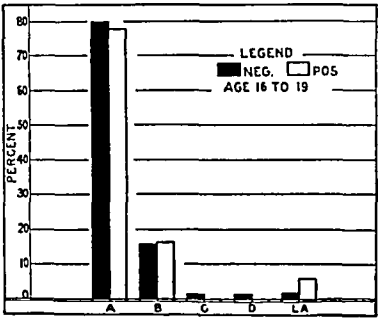


Chart 7.—Comparative medical classification by age (from 16 to 19).

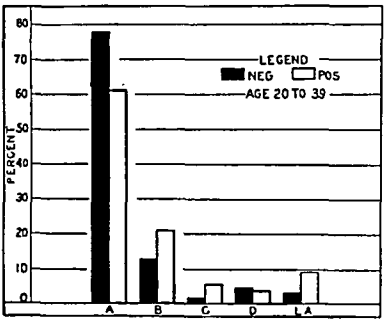


Chart 8.—Comparative medical classification by age (from 20 to 39).

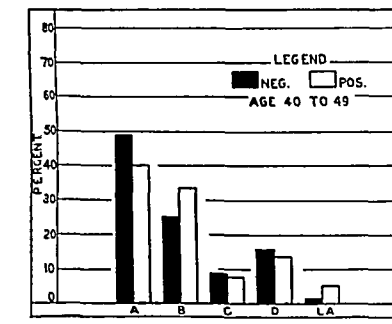


Chart 9.—Comparative medical classification by age (from 40 to 49).

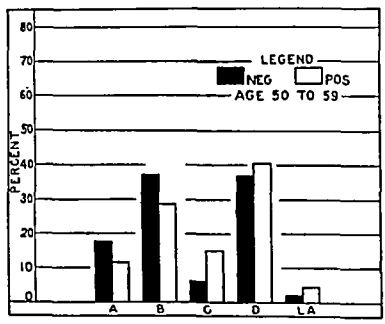


Chart 10.—Comparative medical classification by age (from 50 to 59).

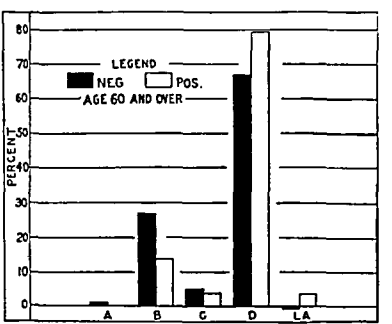


Chart 11.—Comparative medical classification by age (60 years and over).

able to do hard work in the nonsyphilitic column. Those youngsters in the C and D classifications were so assigned chiefly because of extreme youth or congenital abnormalities. The next age group, 20-39 years (chart 8), includes the largest number of men, the age that man should reach the height of physical endeavor. Here one notes seventy-eight per hundred of the nonsyphilitic able to do hard work, whereas only sixty-one per hundred of the syphilitic could do hard work, a difference of seventeen men. These men are not totally and permanently disabled because we find them in B, C and LA, either doing light work or recovering from some acute malady.

COMMENT

Clinically, this study proves conclusively that syphilis may attach itself to any structure of the body. As to whether it attacks that part which has been made vulnerable by some other malady and on which it heaps its insult, or whether it alone is responsible for the increased amount of pathologic change found in the syphilitic, I am unable to say. Certainly there were some individuals who were hale and hearty in spite of syphilis and advancing years. Be that as it may, if about 34 per cent of our Negroes and 7 per cent of our white persons have syphilis and of that number 17 per cent between 20 and 40 years

are not able to do competitive work, and 16 per cent of those past 50 years are not able to work at all, then syphilis is a serious disease from an economic standpoint. Certainly to be considered too is the comparatively rapid drop in the number of the syphilitic from 39 years to 60 years and over (chart 1). This rapid decrease can only mean that a large number having had syphilis have either died, been treated or are not able to report for examination.

No doubt one could select any disease and find a goodly number of persons not only suffering from it but disabled. There is no disease that I know of, however, found in such large numbers, that responds so beautifully to treatment as does syphilis, nor can I think of one that has a longer latent period before serious symptoms manifest themselves, thereby affording a golden opportunity for diagnosis and cure or at least an arrest of the disease.

CONCLUSIONS

1. No orderly train of symptoms could be found resulting from syphilis.

2. Clinically all physical abnormalities were more frequent in persons who had syphilis.

3. In the very young the blood pressure may be markedly affected, either low or high, and should have more study.

4. Syphilis very definitely handicaps a man in his struggle to earn a livelihood.

5. Syphilis is a serious problem, to us not only as physicians but as citizens of Fulton County, Georgia, and the nation.

Grand Theatre Building.

THE MEDICAL TREATMENT OF MÉNIÈRE'S SYNDROME

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In January 1861 at the Imperial Academy of Medicine of France, Prosper Ménière delivered a paper entitled "Memoir Concerning Lesions of the Internal Ear Giving Rise to the Symptoms of Cerebral Apoplecticiform Congestion." This paper was important for two reasons: it was the first time that the syndrome of deafness and tinnitus accompanied by attacks of vertigo, vomiting and nystagmus had been related to the inner ear, and, secondly, it contained the description of an autopsy as a result of which generations of medical students have been taught that these attacks were due to hemorrhage into the labyrinth. Today it is realized that the pathologic anatomy is unknown. It has been impossible to localize the lesion in any one part of the auditory tract. Therefore many forms of therapy have been tried: lumbar puncture, quinine, mastoidectomy, labyrinthectomy and, finally, section of the vestibular portion of the eighth nerve. Of these the last named has been the most successful.

It was called to Furstenberg's¹ attention that dizziness was a common symptom of patients suffering from

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The author was assisted by Miss Dorothy Hale and Miss Elizabeth Fritz, of the Social Service Departments of the Boston City and Massachusetts General hospitals, in following up patients.

1. Furstenberg, A. C.; Lashmet, F. H., and Lathrop, F.: Ménière's Symptom Complex: Medical Treatment, *Ann. Oto., Rhin. & Laryng.* 43: 1035 (Dec.) 1934.

cardiovascular renal disease and that in them the water balance might be at fault. On examination of the literature he found Danish articles² describing the successful treatment of Ménière's syndrome by dehydration and a low salt diet in 150 of a series of 157 patients. With Lashmet's and Lathrop's assistance he undertook some exceedingly careful experiments to determine whether the electrolytes or the water in which they were excreted was the important factor. They concluded that sodium was the factor and that the addition of ammonium chloride to the diet prevented the storage of sodium. Fourteen patients were treated by the Ann Arbor workers. In their series sodium always precipitated an attack, while the elimination of sodium from the body gave complete relief.

Six patients from the neurologic outpatient department of the Boston City Hospital and six from that of the Massachusetts General Hospital have been placed on a low sodium diet with the addition of ammonium chloride. On this regimen, over periods ranging from six months to twenty-two months none of these patients have suffered a severe attack, although mild dizziness and a feeling of fullness in the head may remain. In four a lapse in therapy was followed by an attack. Two patients have been free from attacks, although therapy was discontinued after three months and one year respectively.

Although one sufferer from dizziness due to hypertension was relieved by a low sodium diet, four patients complaining of vertigo unaccompanied by deafness were not relieved by the diet and ammonium chloride.

It must be stressed that Ménière's is a definite syndrome. Many of the unsuccessful attempts at medical treatment have been due to faulty diagnosis. The symptoms of deafness and tinnitus, at least before an attack, are the two that are most commonly overlooked. These are just as much a part of the syndrome as vertigo and vomiting and must be present before the diagnosis can be established. The Bárány test is not of great assistance in diagnosis. Although some had hypoactive or hyperactive labyrinths, many of these patients gave normal reactions. In one patient the labyrinth was dead. In five patients, deafness of a mixed type was attributed to a previous otitis media; in one patient, to an otosclerosis; in five patients, nerve deafness alone was present; in one patient, deafness was present only before an attack.

According to expectations, many practical difficulties arose in keeping clinic patients—many of them foreigners with considerable language difficulty—on a strict diet. All of Furstenberg's fourteen patients were hospitalized for thirty days or more, while all the patients in this series were treated in the outpatient department. Sometimes two or more visits were necessary before a low sodium regimen was attained, but one great advantage in treating these patients is that a sufferer from true Ménière's syndrome is eager and ready to do anything in his power to avert attacks.

An unexpected source of sodium appeared in the course of this study. Since these patients had nausea or vomiting, it was quite natural that they should use sodium bicarbonate or compound effervescent powders. The apparently unsuccessful treatment of two patients was remedied by eliminating these medications.

2. Dederding, D.: Our Ménière Treatment, *Acta oto-laryng.* 16: 404, 1931. Mygind, S. H., and Dederding, D.: Significance of Water Metabolism in General Pathology as Demonstrated by Experiments on the Ear, *ibid.* 17: 424, 1932.

REPORT OF CASES

CASE 1.—A man, aged 54, seen Feb. 12, 1935, stated that yearly attacks of tinnitus, vertigo, vomiting and diplopia had begun five years before. A week before admission he had four in one week. There was mixed deafness and a dead labyrinth on the right. He was put on a diet plus 10 grains (0.6 Gm.) of ammonium chloride three times a day. August 14 he felt well and had no severe attacks. When the patient was seen Feb. 7, 1936, he had had two mild attacks, and the dose of ammonium chloride was raised. June 3 there had been no severe attack. December 15, one attack after exertion. He had not been taking a full amount of ammonium chloride or adhering strictly to diet.

CASE 2.—A woman, aged 51, seen March 22, 1935, stated that attacks of vertigo, vomiting and loss of consciousness had begun one year before. Tinnitus and bilateral mixed deafness were found. She was placed on the regimen. No attacks occurred until July 1935, when three weeks after discontinuing the diet and medication she had a severe attack. She returned to her diet and had had no attacks and was feeling very well March 1,

*Furstenberg's Treatment and Diet**

1. Low salt content.
2. Medication. Ammonium chloride 3 Gm. with each meal, in capsules (six capsules each containing $7\frac{1}{2}$ grains [0.5 Gm.] taken during the meal), three days on and two days off. The capsules should not be replaced by the chocolate coated or the enteric coated pills because the latter sometimes pass through the gastro-intestinal tract without being absorbed. The ammonium chloride can be given in this dosage for an indefinite time without injurious effects. We have had patients with nephritis receiving ammonium chloride in this manner for a period of five years.
3. Water intake unrestricted.
4. Diet, approximate neutral, low sodium diet.
 - Group A: The following foods may be taken daily:
 1. Eggs, meat, fish and fowl as desired.
 2. Bread as desired.
 3. Cereal, one of the following: farina, oatmeal, rice, puffed rice or puffed wheat.
 4. Potato and one or more servings of any of the following: (a) macaroni, (b) spaghetti, (c) rice, (d) corn, (e) cranberries, (f) prunes, (g) plums.
 5. Milk as desired.
 6. Vegetables and fruits daily of any fruit and of any vegetable not included in groups B and C as desired.
 7. Butter, cream, honey, jellies, jams, sugar and candy permitted as desired.
 8. Tea and coffee as desired.
 - Group B. Foods to be avoided: All salt meats and fish, or bread, crackers and butter prepared with salt. Carrots, clams, condensed milk, raisins, caviar, cowpeas, olives, spinach, cheese, endive, oysters.
 - Group C. Foods to be taken no more than twice weekly: Lima beans, beets, buttermilk, cantaloupe, cauliflower, celery, chard, dried coconut, dried currants, dates, figs, horseradish, kohlrabi, limes, muskmelon, peanuts, peaches, mustard, pumpkin, radishes, rutabagas, strawberries, turnips, turnip tops, watercress.

* Contains about 87 milliequivalents of sodium.

Note: All food to be prepared and served without salt.

Preparations containing sodium to be avoided: Sodium salicylate, bicarbonate, bromide, tartrate, iodide, nitrite, phosphate, thiosulfate, benzoate, sodium phenobarbital and amyral, compound effervescent powders, potassium and sodium tartrate and baking powder.

1936. When seen July 26 there had been no attacks. She discontinued the diet in March and when seen November 12 there had been no attacks.

CASE 3.—A man, aged 62, seen May 12, 1935, had had attacks of vertigo once a month for one year, vomiting and loss of consciousness. The left ear felt closed. He had arteriosclerosis and hypertension. He was given the full regimen. June 25 he vomited ammonium chloride so he stopped it. August 6 he was losing weight on a salt-free diet. There had been no attacks. He was taken off the diet. October 1 he had gained weight and felt well. Jan. 4, 1936, he reported that he had had an attack October 21. May 25 he reported that he had had many attacks. He is now trying a low sodium diet again but Jan. 18, 1937, reported many attacks.

CASE 4.—A man, aged 59, admitted May 15, 1935, had had attacks of tinnitus, vertigo and unconsciousness for three years. There was old chronic catarrhal otitis media, bilateral mixed deafness and past pointing to the right. The regimen was started. June 5 the condition was improved. There had been no attacks. October 4 there had been no attacks. The patient had ceased to take ammonium chloride but was on a fairly salt-free diet. March 25, 1936, he complained that his legs were giving out from under him. There was no mention of

attacks. May 27 he stated that he had two types of attacks now once or twice a month, vertigo and sudden weakness in the legs. He had been eating salt and had taken compound effervescent powders for years. He was given the low sodium diet again. December 4 he reported that no attacks had occurred. Deafness has increased.

CASE 5.—A man, aged 64, seen May 20, 1935, complained of attacks of vertigo. In September 1933 mastoidectomy was done on the right and section of the right eighth nerve was done one week later. There had been no change in attacks since. He was placed on a salt-free diet and ammonium chloride 15 grains (1 Gm.) three times a day. July 15, 1935, the condition was better. There had been no attacks. May 13, 1936, there had been no attacks since he was placed on the diet. He took ammonium chloride for only from four to six weeks. He complained of deafness in the right ear and tinnitus. He ate bread and butter containing salt, but otherwise he did not use it. He was given a diet sheet. November 15 he felt a little unsteady.

CASE 6.—A man, aged 38, seen Aug. 13, 1935, had his first attack in June; five had occurred since that time. He complained of vertigo, vomiting, mixed deafness and perforated drum of the left ear. The Bárány test was negative. He had lost 40 pounds (18 Kg.) and was placed on the regimen. October 21 he reported no attacks. The condition was much improved. He was gaining weight. July 14, 1936, he had had no attacks. He went off the regimen in November 1935.

CASE 7.—A woman, aged 37, seen Oct. 24, 1935, complained of attacks of vomiting and vertigo. She was placed on a diet plus 4 Gm. of ammonium chloride a day, by the Waltham Hospital, to which she had been admitted in May 1935. She had no attacks until September, when she had omitted ammonium chloride for a month. There was nerve deafness of the right ear and a hypo-active labyrinth. She was given 3 Gm. of ammonium chloride three times a day after meals, three days on, two days off. Jan. 14, 1936, she reported that there had been no attacks. She felt better than she had for years. April 15 she felt very well and reported no attacks. November 10 she had had no attacks.

CASE 8.—A man, aged 48, seen Nov. 8, 1935, had had one or two attacks of vertigo and falling daily and then none for several days since March. There was running of the ear one year before, mixed deafness, more in the left ear, tinnitus and staggering. He had arteriosclerosis. The blood pressure was 180 systolic, 110 diastolic. There was mild Parkinson's syndrome. He was given the regimen. December 12 he felt much stronger and was walking well. There had been no severe attacks, only one or two minor ones. May 6, 1936, he reported one moderately severe attack in February while shoveling snow. He had been eating WPA meat containing sodium. He had headaches. August 12 he had had no attacks and had gained 8 pounds (3.6 Kg.) since November 1935. December 18 he was feeling very well. No attacks had occurred.

CASE 9.—A woman, aged 45, seen Nov. 27, 1935, had had tinnitus, vomiting and vertigo which lasted one day, two years before. The preceding June she had another attack and had not felt herself since that time. She had five more attacks at intervals of two weeks. She had been treated for chronic catarrhal otitis media for many years and bilateral mixed deafness. She was placed on 1.5 Gm. of ammonium chloride three times a day after meals, three days on and two days off, and a low sodium diet. April 1, 1936, she reported no attacks. She felt well. Tinnitus was improved slightly. May 13 she felt very well and had had no attacks. When she was seen in September and again in January 1937 no attacks had occurred.

CASE 10.—A man, aged 42, seen Dec. 3, 1935, had had onset of attacks of tinnitus, vertigo and nausea six years before. Now he was having them once a week. His father was deaf and had similar attacks. There was mixed deafness, more on the right. He was unable to work or drive a car. He was placed on a full dose of ammonium chloride and a salt free diet. December 17 he stated that he had one attack the day after he started the diet. He was driving a car and feeling well. There was a little transitory dizziness. Jan. 14, 1936, he reported that he had had two attacks, one the day after eating a Christmas dinner containing salt and one after a dose of sodium bicarbonate. At the time of examination he was feeling well. April 1 he had one mild attack. He was feeling well and was driving a postoffice truck. July 7 he reported that he had discon-

tinued his diet for two weeks and had a very severe attack June 14, in which he lost consciousness, and has not felt well since. He is back on the diet. In August he felt well. There had been no attacks. In January 1937 he was feeling well. He had had two brief attacks in spite of a full regimen. He had been taking potassium chloride also.

CASE 11.—A man, aged 59, seen Dec. 19, 1935, had had four attacks of tinnitus, vomiting and vertigo during the past year. The last one was December 4. There was nerve deafness. He was given the regimen. Jan. 23, 1936, there had been no attacks but a little dizziness at night. May 26 he had had no attacks and had lost 10 pounds (4.5 Kg.).

CASE 12.—A man, aged 49, seen May 7, 1936, complained that two years before he had had deafness and tinnitus of the right ear. Eleven days before examination there was a sudden attack of vertigo to the right with no vomiting. Tinnitus ceased two years before. Lying on the right side would bring on an attack. Nerve deafness was present. The regimen was started. May 21 there had been no severe attacks. He could now lie on the right side. There was some tinnitus of the left ear. June 30 there had been no attacks. He had lost 16 pounds (7.3 Kg.) and felt that pills were hard on the stomach. Ammonium chloride was reduced to three 5 grain (0.3 Gm.) pills with each meal. July 21 he reported one attack of vertigo, after which he returned to the full dose of ammonium chloride. August 26 he felt well. There had been no attacks.

SUMMARY

Severe attacks of vertigo and vomiting in twelve patients suffering from deafness and tinnitus have ceased under the medical treatment described.

412 Beacon Street.

PROTEIN, SALT AND FLUID CONSUMPTION OF 1,000 RESIDENTS OF NEW YORK

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AND

HERMAN O. MOSENTHAL, M.D.

NEW YORK

Various workers in nutrition have stated that a daily protein intake of from 75 to 100 Gm., a daily salt intake of from 2 to 4 Gm.¹ and a fluid intake of from 1,000 to 2,000 cc. are suitable or optimal components of an adequate diet. In the United States particularly it has been believed that most people eat from 75 to 100 Gm. of protein daily.² Von Voit³ suggested 118 Gm. of protein as a desirable daily intake. McLester⁴ favors 100 Gm. daily for stamina and vigor. Studies on the twenty-four hour urines which yielded information for the urea, salt and fluid excretion have been made since 1920 on normal individuals who appeared for health examination. These studies provide material for an analysis of the habitual diet of residents of New York City. The study comprises 1,000 such individuals, normal so far as they knew, who came for a "check up" because of their interest in a "health examination," or because a relative had been found to have diabetes or hypertension or for some such reason. From this study were omitted all cases that presented diarrhea, edema or any illness other than a hypertension first made known as a result of this examination. While the subject was on his usual diet there was obtained in each case (1) the volume of urine in twenty-four hours, (2) the sodium chloride excretion, (3) the urea

excretion, (4) the hemoglobin and red blood cell count, (5) the blood pressure, (6) the blood urea nitrogen, (7) the blood uric acid, (8) chemical and microscopic analysis of the urine, and in most cases (9) the blood sugar, (10) the blood cholesterol and (11) the blood chlorides.

The data are presented as follows:

1. The protein intake of group A (563 normal individuals), group B (298 individuals who, although they did not know it before this study, showed an elevation of blood pressure over 145 systolic, 90 diastolic in younger people and over 150 systolic, 96 to 100 diastolic in older people), and group C (139 individuals who showed for the first time to their knowledge not only an elevation of blood pressure but also a blood urea nitrogen of from 20 to 40 mg. per hundred cubic centimeters).

2. The salt intake of groups A, B and C.

3. The fluid intake of groups A, B and C.

METHOD

The determination of the amount of protein, salt and fluid intake was based on the nitrogen, sodium chloride and total fluid output in the twenty-four hour urine. This remains the most feasible laboratory method since in normal individuals, especially when a large series is studied, slight positive balances in some subjects are offset by negative balances in others. In previous observations it was found that the urea nitrogen as determined by the hypobromite method was really equivalent to the total urinary nitrogen.⁵ Consequently the values obtained by the hypobromite method were regarded as representing total nitrogen and will be so termed in the subsequent discussion.

The sodium chloride in the urine was estimated according to the method of Volhard.

In the calculations of the protein intake from the urinary nitrogen, allowances were made for nitrogen loss in the feces. Lusk,⁶ Mosenthal,⁷ Peters and Van Slyke⁸ and others have shown that only from 6 to 10 Gm. of protein (from 8 per cent to 10 per cent of the protein eaten) is lost in the stool. Thus the computations based on urinary nitrogen plus 10 per cent for nitrogen lost in the stool furnish a satisfactory formula for estimating protein consumption.

The calculation for protein intake is as follows: Urine urea grams (as obtained by hypobromite method) $\times 0.46$ (nitrogen comprises 46 per cent of urea) equals urine nitrogen. Urine nitrogen $\times 6.25$ equals amount of protein represented by the urinary nitrogen (nitrogen is 16 per cent of protein). These two steps may be combined by multiplying the urine urea grams by 2.87 (0.46×6.25 equals 2.87). If to the factor 2.87 is added one tenth (0.28) to represent the one tenth of protein nitrogen of the intake that is lost in the stool, the factor is approximately 3. Hence the twenty-four hour urine urea figure multiplied by 3 yields the amount of protein represented in the urine and stool. It should be borne in mind that the calculations used in this study have allowed for the protein of the stool.

With regard to estimations of the fluid intake on the basis of urinary output, Soderstrom and Du Bois⁹

1. McLester, J. S.: Nutrition and Diet in Health and Disease, Philadelphia, W. B. Saunders Company, 1929, pp. 99, 203 and 443.

2. Lusk, Graham: Science of Nutrition, Philadelphia, W. B. Saunders Company, 1928, p. 457.

3. von Voit, Carl: Handbuch der Physiologie, Leipzig, L. Hermann, G. 519 (pt. 1) 1881.

4. McLester: Nutrition and Diet in Health and Disease, p. 214.

5. Mosenthal, H. O.: Renal Function as Measured by Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine, *M. Clin. North America* 4: 209 (July) 1920.

6. Lusk: Science of Nutrition, p. 53.

7. Mosenthal, H. O.: Observations on the Succus Entericus, *J. Exper. Med.* 13: 319, 1911.

8. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company 1: 270, 1931.

9. Soderstrom, G. F., and Du Bois, E. F.: The Water Elimination Through Skin and Respiratory Passages, *Arch. Int. Med.* 10: 931 (May) 1917.

cite the fact that when 1,894 cc. of water is taken the output is 1,750 cc. (a difference of 144 cc.), so that for practical purposes the urinary fluid output may be taken as approximately the fluid intake, particularly when a large series is studied in which positive balances counteract negative balances.

The specimens of urine were collected without difficulty. Ordinary traveling bags were used containing

TABLE 1.—Protein Intake by One Thousand Subjects

Amount of Protein, Gm. per Day	Group A 563 Normal Individuals		Group B 298 Subjects with Hypertension		Group C 139 Cases of Hypertension and Nitrogen Retention	
	No. of Cases	Per- centage of Group	No. of Cases	Per- centage of Group	No. of Cases	Per- centage of Group
20 or less.....	55	9	42	14	...	..
21 to 42.....	293	52	128	43	87	62
43 to 60.....	159	28	69	23	35	25
61 to 75.....	16	2	45	15	13	9
Over 75.....	40	7	14	4	4	3
Quota of group eating 42 Gm. or less of protein per day.....	348	61	170	57	87	62
Quota of group eating 60 Gm. or less of protein per day.....	507	89	239	80	122	87

TABLE 2.—Protein Eaten by Group A: 563 Normal Individuals (280 Males, 283 Females)

	Cases	Per Cent
20 Gm. or less.....	55	9+
21 to 42 Gm.....	293	52
43 to 60 Gm.....	159	28+
61 to 75 Gm.....	16	2+
Over 75 Gm.....	40	7+

eight wide-mouthed 20 ounce bottles in which each urine specimen was voided separately. The subjects followed their routine occupations, ate their usual meals and kept a record of their food and fluid intake during the twenty-four hour period of observation.

PROTEIN INTAKE

Table 2 shows that 9 per cent of the subjects in group A ate 20 Gm. of protein daily, or less than half the so-called 45 Gm. "minimal" protein intake; 61 per cent of these normal subjects ate 42 Gm. or less of protein daily; 89 per cent were eating 60 Gm. or less of protein daily. Only forty subjects, 7 per cent of the group, ate 75 Gm. or more of protein daily. These figures for protein consumption must appear surprising when it is shown that half the group ate less than what is felt to be an adequate minimal protein allowance, and only 7 per cent ate the 75 to 100 Gm. that has been advocated as the more fitting daily ration (tables 1 and 2).

Denis and Borgstrum,¹⁰ Brooks¹¹ and Beard,¹² working with a large number of male medical students who had an ample supply of food and could eat as they pleased, showed that the protein consumed daily was about 71 to 79 Gm. for a person weighing about 70 Kg. Lusk¹³ felt that a great number of medical students in New York City do not have an output of over 12 Gm. of nitrogen daily and believed the average protein intake of these students to be about 75 Gm. daily.

10. Denis, W., and Borgstrum, P.: Study of the Effect of Temperature on Protein Intake, *J. Biol. Chem.* **61**: 109 (Aug.) 1924.

11. Brooks, F. P.: Protein Intake of Medical Students, *Am. J. Physiol.* **89**: 403 (July) 1929.

12. Beard, H. H.: Protein Intake of Medical Students, *Am. J. Physiol.* **82**: 577 (Nov.) 1927.

13. Lusk: *Science of Nutrition*, p. 455.

The data presented in this study coincide with those of Hetler,¹⁴ of Sherman¹⁵ and of Mendel.¹⁶ Hetler,¹⁴ in studies of the women of the Iowa State College in 1927, found that these subjects would take as high as 70 Gm. of protein daily but more often would consume only from 25 to 40 Gm. From studies of the twenty-four hour urine in 1932, Hetler concluded that the average nitrogen excretion was 7.69 Gm., representing 48 Gm. of protein. Sherman¹⁵ reported on 109 experiments indicating an average of 44 Gm. of protein and ranging from 21 to 65 Gm. Mendel¹⁶ in 1932 said:

In health, the nitrogen content of the kidney output furnishes a reliable index of the nitrogenous (or protein) intake. During the nineties of the last century the estimated protein intake, after due allowance for fecal loss of nitrogen generally approximated an average of at least 100 Gm. (16 Gm. N \times 6.25) a day. In the course of the years, these annually secured estimates are showing lower averages. Other teachers have had similar experiences. The newest figures of Hetler on young women in Illinois studied during the years 1928-1930 averaged 7.7 Gm. of nitrogen (equivalent to about 50 Gm. of protein metabolized) daily.

TABLE 3.—Protein Eaten by Group B: 298 Individuals Who Were Found to Have Hypertension Which They Did Not Suspect (118 Males, 180 Females)

	Cases	Per Cent
20 Gm. or less.....	42	14+
21 to 42 Gm.....	128	43
43 to 60 Gm.....	69	23
61 to 75 Gm.....	45	15
Over 75 Gm.....	14	4+

TABLE 4.—Protein Eaten by Group C: 139 Subjects Who Were Found to Have Hypertension and a Blood Urea Nitrogen of 20 to 40 Mg. (82 Males, 57 Females)

	Cases	Per Cent
21 to 42 Gm.....	87	62
43 to 60 Gm.....	35	25
61 to 75 Gm.....	13	9+
Over 75 Gm.....	4	3—

TABLE 5.—Summary of Protein, Salt and Fluid Intake of One Thousand New York City Residents

	Number of Cases	Percentage
I. Protein intake, Gm. per day		
20 or less.....	97	10
21 to 42.....	508	51
43 to 60.....	263	26
61 to 75.....	74	7
Over 75.....	58	6
II. Salt intake, Gm. per day		
4 or less.....	50	5
4 to 8.....	416	42
Over 8.....	534	53
III. Fluid intake, cc. per day		
1,000 or less.....	253	25
1,000 to 1,500.....	357	36
Over 1,500.....	390	39

It has been pointed out by many workers that a low protein ration is not conducive to general health or to mental or physical efficiency. "Nutritional" edema, fatigue, anemia, cloudy swelling of vital organs, lack of resistance to infection, pellagra and other ill effects have been cited.

14. Hetler, R. A.: Protein Intake and Basal Metabolism of College Women, *J. Nutrition* **5**: 69 (Jan.) 1932.

15. Sherman, H. C.; Gillett, L. H., and Osterberg, E.: Protein Requirements of Maintenance in Man, *J. Biol. Chem.* **41**: 97 (Jan.) 1920.

16. Mendel, L. B.: Changing Diet of the American People, *J. A. M. A.* **99**: 117 (July 9) 1932.

It is profitable to compare the extremes among this normal group A as to its use of protein. The "low protein group": (1) females constituted most of this group; (2) low or low-normal blood pressure readings are encountered frequently, yet the "high protein" eater does not have a high blood pressure; (3) underweight occurs frequently; (4) mild secondary anemia is com-

TABLE 6.—Salt Eaten by Group A: 563 Normal Individuals

	Cases	Per Cent
Less than 4 Gm.....	27	5—
4 to 8 Gm.....	211	37
Over 8 Gm.....	325	57

TABLE 7.—Salt Eaten by Group B: 298 Individuals Who Were Found to Have Hypertension Which They Did Not Suspect

	Cases	Per Cent
Less than 4 Gm.....	15	5
4 to 8 Gm.....	133	44
Over 8 Gm.....	150	50

TABLE 8.—Salt Eaten by Group C: 139 Subjects Who Were Found to Have Hypertension and Blood Urea Nitrogen of from 20 to 40 Mg.

	Cases	Per Cent
Less than 4 Gm.....	8	6
4 to 8 Gm.....	72	52
Over 8 Gm.....	59	42

mon; (5) the blood urea nitrogen is often found to be from 8 to 10 mg. per hundred cubic centimeters as compared to from 12 to 15 mg., the standard normal.

The "high protein group": (1) males comprised most of this group; (2) the blood pressure is not elevated; (3) these individuals are of average weight, though very rarely overweight is noted; (4) no anemia is demonstrated and rarely a high red blood cell count is seen (e. g., 6,480,000); (5) the blood urea nitrogen figures in a few cases are the upper limit of normal; e. g., from 15 to 18 mg. per hundred cubic centimeters. Yet high protein feeding seems, in the cases comprising this study, to have less effect in keeping the blood urea nitrogen at the high normal figure than has a low water excretion. Thus, while the "low protein eater" tends toward a low blood pressure and a low hemoglobin percentage, the "high protein eater" has no increased blood pressure and his hemoglobin is normal.

Table 3 shows that 57 per cent of the subjects in group B (170 cases) ate 42 Gm. or less of protein daily. This is a close approximation to the 61 per cent of the normal group, who ate a similar low protein ration. Only 4 per cent of these hypertensive persons ate 75 Gm. or more of protein daily. When these 298 subjects of essential hypertension with no impairment of renal function are considered, it is found that these people, if left to their own choice, on their habitual diet since they were unaware of an existing hypertension, were eating practically the same amount of protein as nonhypertensive persons. The same was found to be true of their salt and their fluid intake.

Many of the patients found to have hypertension were seen several times in the course of the years over which this study was made, some of them having followed a low protein diet for periods of from three months to a year. There is no evidence to show that

a low protein diet will materially reduce the blood pressure. In the very few instances in which some appreciable drop in blood pressure occurred, protein and total diet restriction had been extreme and had resulted in anemia, undernutrition and general weakness. In several cases low protein intake by patients with hypertension was compensated by an excessive carbohydrate intake to satisfy hunger, which resulted in an increase of weight, thereby handicapping the patient.

Table 4 shows that even the hypertensive person with slight renal insufficiency unknown to the patient does not differ widely from the normal as to the protein content of his diet. The same is true of the salt and fluid intake.

It might be urged that nitrogen retention in these subjects may have caused a low urinary urea excretion so that the protein intake estimations for this group may be low. However, ninety-four out of this group of 139, or 67 per cent of the total, had blood urea nitrogen figures ranging from 20 to 25 mg. per hundred cubic centimeters or but slightly above the average normal; their urinary urea output and, by computation, their protein intake fell within the same range as those of the normal subjects, the hypertensive subjects with normal blood chemical changes and the hypertensive subjects with blood urea nitrogen figures of from 26 to 40 mg. per hundred cubic centimeters.

SALT INTAKE

As shown in table 6, 57 per cent of the subjects in group A ate over 8 Gm. of salt daily; eight individuals ate over 20 Gm. of salt daily, two of these taking as high as 40 Gm. a day (five of these eight subjects were overweight). The "low salt eaters" were chiefly females; the "high salt eaters" were mainly males. Among the "high salt eaters" there was a tendency toward a high

TABLE 9.—Fluid Taken by Group A: 563 Normal Subjects

	Cases	Per Cent
Less than 1,000 cc.....	152	27
1,000 to 1,500 cc.....	185	33
Over 1,500 cc.....	226	39

TABLE 10.—Fluid Taken by Group B: 298 Cases of Hypertension

	Cases	Per Cent
.....	71	24
.....	107	36
.....	120	40

TABLE 11.—Fluid Taken by Group C: 139 Cases of Hypertension with Blood Urea Nitrogen Figures of from 20 to 40 Mg.

	Cases	Per Cent
Less than 1,000 cc.....	20	22—
1,000 to 1,500 cc.....	65	47
Over 1,500 cc.....	41	30+

normal blood urea nitrogen (from 15 to 18 mg. per hundred cubic centimeters) and a high normal blood uric acid (from 3.5 to 4.5 mg. per hundred cubic centimeters).

Six persons of group C ate from 18 to 28 Gm. of salt daily.

FLUID INTAKE

Among the normal individuals, the "high fluid" consumers may be compared with the "low fluid" users. The "high fluid" normal: (1) males make up the major-

ity of this group; (2) the group is equally divided as to obese and thin persons; (3) the blood urea nitrogen is low normal. There is no relation between high fluid and high salt intake. The "low fluid" normal: (1) females comprise most of this group; (2) obesity is often present; (3) there is a fair incidence of the upper limit of normal blood urea nitrogen (from 15 to 18 mg. per hundred cubic centimeters) and of the upper normal limit of blood uric acid (from 3.5 to 4.5 mg.). The relatively high blood urea nitrogen and uric acid in persons who drink but little fluid is interesting in view of the fact that there has been noted a slight increase in the nitrogen elimination if copious amounts of water are taken. This is thought by Hawk¹⁷ to demonstrate the fact that water drinking actually induces increased protein metabolism and is not to be thought of as merely a "washing out" process but rather as a form of "specific dynamic action."

Fluid taken by group B (table 10) is essentially the same as by group A (table 9). It is to be noted that 1,500 cc. or more of fluid was taken by only 30 per cent of the subjects in group C (table 11), as compared to 40 per cent in groups A and B. Whether the slight nitrogen retention of this group is explainable, at least for some of its members by their low fluid intake or whether the two results are merely a coincidence is debatable. It is difficult to see why nitrogen retention of from 20 to 40 mg. per hundred cubic centimeters (in most cases from 20 to 25 mg.) would cause a low fluid output, since urea is an excellent diuretic. It must be noted, as has already been pointed out, that the normal individuals who take little fluid manifested high normal blood urea nitrogen.

SUMMARY AND CONCLUSIONS

1. It was felt from this study of 1,000 cases that the minimal requirement in a study of protein, salt and water consumption is the twenty-four hour urine sample. The patient's statement and even his record of food consumed may be very misleading. Thus we may cite a patient with Bright's disease (not included in this series) who believed himself to be on a low protein diet but who was found to be deriving more than 100 Gm. of protein daily from bread, cereals and cheese.

2. Many people eat less than 45 Gm. of protein daily. Sixty per cent of 1,000 subjects in this study were found to be eating 42 Gm. or less of protein daily (table 5). The evil effects of such a course have been pointed out.

3. The majority of the individuals studied were found to take a low protein (42 Gm. or less), moderately high salt (from 4 to 8 Gm. or more) and moderate fluid (1,000 cc. or more) ration.

4. There is no relation between protein, salt and water intake.

5. While the normal individual eating a low protein diet tends to have a low blood pressure and a low hemoglobin percentage, the normal person eating a high protein diet has no increased blood pressure and his hemoglobin is normal.

6. The high protein diet has less effect in raising the blood urea nitrogen than has a low fluid intake.

7. People with hypertension do not habitually eat more protein or more salt than normal persons. There is no evidence to show that a low protein diet, followed by a hypertensive subject, will materially reduce the blood pressure provided there is no anemia.

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DIVINYL ETHER

A REPORT OF ITS FURTHER USE AS A GENERAL ANESTHETIC

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PHILADELPHIA

In 1934 we¹ reported experimental and clinical observations on the use of divinyl ether as a general anesthetic. At that time our experience was based on the use of divinyl ether in 461 patients. We were led to conclude that "from the standpoint of induction, maintenance and recovery the anesthetic is satisfactory.

... Its exact position in relation to the other general anesthetics now being used will have to await a more extensive clinical experience."

The use of the anesthetic has been extended to a number of the clinical departments of the hospital, and in certain of them it has become the anesthetic of choice when general anesthesia is required. The data in this paper have been obtained from 2,675 anesthetizations. This is by far the largest series reported. We believe that it is now possible more clearly to define the usefulness of this substance as an anesthetic agent.

METHOD

In our first series of 461 patients the open drop method was used in about 90 per cent of the patients. In approximately 10 per cent it was administered in conjunction with nitrous oxide and oxygen. In the present series divinyl ether was administered by the open drop method in 2,266 instances (84 per cent) and by the closed method, that is, with nitrous oxide and oxygen, or more usually with oxygen alone, to 409 patients (15 per cent).

We believe that for short anesthetizations the method of administration is unimportant, provided, when the open drop method is employed, the anesthetic is administered through only a few layers of loosely fluffed gauze. For periods of anesthesia exceeding one-half hour it is best that the anesthetic be volatilized with oxygen. This should be done for two reasons; first, the anesthetic is so volatile that a considerable amount of it is lost by evaporation when the open drop method is employed, and, second, our laboratory investigations have convinced us that the use of a plentiful supply of oxygen with the anesthetic greatly reduces the incidence of liver necrosis, at least in the dog.²

With either method the anesthetist must exercise due caution lest he exceed the concentration in the blood necessary for anesthesia. The anesthetic concentration in the blood of man for surgical anesthesia with good abdominal relaxation is approximately 18 mg. per hundred cubic centimeters, while the concentration for extra-abdominal operations when marked muscular relaxation is not required is less than this figure, concentrations of 11 mg. per hundred cubic centimeters having proved satisfactory.

The concentration in the blood necessary for surgical anesthesia is less than that required for chloroform

From the Hospital of the University of Pennsylvania.
1. Goldschmidt, Samuel; Ravdin, I. S.; Lucke, Baldwin; Muller, G. P.; Johnston, C. G., and Ruigh, W. L.: Divinyl Ether, *J. A. M. A.* 102:21 (Jan. 6) 1934.
2. Goldschmidt, Samuel; Ravdin, I. S., and Lucke, Baldwin; *J. Pharmacol. & Exper. Therap.* 50:1 (Jan.) 1937.

17. Hawk, quoted by McLester,¹ p. 29.

anesthesia and approximately the same as is necessary when cyclopropane is used.³ The lethal blood concentration in the dog is 68 mg. per hundred cubic centimeters. We do not know what this figure may be in man. However, since the anesthetic concentration in the dog was 28 mg. per hundred cubic centimeters, which is higher than for man, it may be safely presumed that the lethal concentration in man does not exceed that for the dog.

Surgical anesthesia is rapidly and smoothly induced and it is not necessary to push the anesthetic to obtain the desired objective. The rapidity of the recovery from the anesthetic implies that it is rapidly removed from the body and provides a safety factor of no mean importance in so potent an agent.

TYPES OF CASES

In order that the anesthetic might receive a thorough study, it has been used in a wide variety of surgical lesions (table 1).

In the dental cases it has proved a valuable anesthetic and has supplanted the use of nitrous oxide and oxygen in the dental clinic in the Hospital of the University of Pennsylvania. The rapid induction and recovery, with efficient relaxation and minimum of after-effects, has made it the anesthetic of choice in this clinic.

The very low incidence of anoxemia, even for a short period, when divinyl ether has been used, in

TABLE 1.—General Classification of the Patients

Dental	200
"	30
"	1,113
"	178
General and neurosurgical	1,148
Total	2,675

comparison with that observed during nitrous oxide and oxygen anesthesia for dental extractions, has been striking. The recovery from the anesthetic has been just as rapid, if not more so, than with nitrous oxide and oxygen anesthesia.

We have been particularly impressed with the ease with which anesthesia can be maintained when a small piece of gauze is placed over the nostrils. When it is necessary to prolong the period of anesthesia, this is of definite advantage. The rapid recovery and infrequency of postanesthetic vomiting are of real importance in any clinic which has no provision for the temporary bed care of patients.

While it is true that the ophthalmologist, as a rule, prefers local anesthesia, there are times and conditions when general anesthesia is necessary. In the latter group divinyl ether has proved itself to be an ideal anesthetic. It has been very useful in fundus examinations in children and in a variety of ophthalmic operations in which local anesthesia needed reinforcement, or in children in whom cooperation could not be obtained for operations under local anesthetics. The ease with which the anesthetic may be administered through a small piece of fluffed gauze obviates the necessity of a mask, as is often required when nitrous oxide and oxygen are used.

The rapid, smooth induction is not attended by the struggling which so frequently is encountered during the induction of diethyl ether anesthesia in children.

In our earlier series one instance of overconcentration of the anesthetic occurred, with rapid recovery after cessation of the anesthetic. In the present series no such complication was encountered.

In the field of otolaryngology divinyl ether has been widely used by us. It was used as the sole anesthetic in a series of tonsillectomies. In these it was the opinion of the operator that oozing from the tonsillar bed was greater than when diethyl ether was used. The oozing, while not alarming in any instance, was such as to be annoying during the removal of the second tonsil. It is for this reason that it is not now used as a routine for tonsillectomy. It is, however, now being used as a routine for the induction of general anesthesia for this operation in this hospital.

It is the opinion of both anesthetists and clinicians that the induction is more rapid and smoother than when nitrous oxide and oxygen is used as the preliminary anesthetic. Induction is much more rapid than when diethyl ether is used, and efficient relaxation of the masseter muscles is obtained at a much earlier period. The excitement period, so frequent in children when diethyl ether is used throughout, has been practically eliminated.

Divinyl ether has been used satisfactorily for mastoid operations, myringotomy, suppurative cervical adenitis and harelip operations. For myringotomy, in which only a very short period of anesthesia is required, it has practically supplanted all other anesthetic agents. A small amount of the anesthetic can be carried to the patient's bedside and the operation completed before the initial stages of diethyl ether anesthesia could have been induced. Furthermore, no apparatus such as is necessary when nitrous oxide and oxygen are used is required.

It has been used for a variety of orthopedic procedures including tenotomy, exposure and manipulations of joints, and the reduction of fractures. The rapidity with which relaxation can be obtained makes it exceedingly useful in the manipulation of bones and joints, especially when repeated anesthetizations may be required. Patients have not objected to repeated anesthetizations, the postanesthetic sensations on the whole being very pleasant. In painful dressings in children, short periods of anesthesia may change the morale of the entire ward. When restriction of motion of a joint results from prolonged immobilization, the use of the anesthetic during early manipulation results in a very grateful patient.

The general surgical procedures in which the anesthetic has been used are too varied to enumerate. They include thyroidectomy, rib resection, a large number of abdominal procedures, herniorrhaphy, hemorrhoidectomy, the reduction of fractures, and operations on the general soft parts of the body.

In many of these conditions it has no superiority over other anesthetics now available. For short operations in which rapid induction and recovery are desired, it is exceedingly useful. In those operations in which greater relaxation is required than that afforded by the anesthetic being used, divinyl ether is most helpful. For the fluoroscopic reduction of fractures, at all ages, it has become the anesthetic of choice. The rapidity with which relaxation is obtained is of real value in these cases. This is especially true when it is remembered that many of these patients have had no special preparation for anesthesia and frequently have ingested food a short time before anesthetization.

3. Waters, R. M., and Schmidt, E. R.: Cyclopropane Anesthesia, J. A. M. A. 103:975 (Sept. 29) 1934.

In the surgical outpatient department it has proved so efficient that nitrous oxide and oxygen are no longer used when a general anesthetic is required. In the incision and drainage of abscesses, the repair of lacerations of the soft parts, and for the reduction of ambulatory fractures, it has proved exceedingly efficient. It is the opinion of the staff of the surgical outpatient department that the rest required following anesthesia is approximately one-fifth as long as when nitrous oxide and oxygen are used.

AGES OF THE PATIENTS

The youngest child in this series was 15 months old and the oldest patient 75 years old. A child of 19 months was anesthetized for one hour and twenty minutes. During the entire period maintenance was smooth and at the completion of the operation recovery occurred in less than four minutes.

In hypertensive aged individuals and in patients with cardiac disease it has proved useful, for there is no tendency for the anesthetization to be attended with further elevation of the blood pressure, as so frequently occurs in nitrous oxide and oxygen anesthesia. Every age group over 1 year has been anesthetized. There is no age contraindication to its use.

LENGTH OF ANESTHESIA

In table 2 are given the data on the duration of anesthesia in the 2,675 anesthetizations.

It will be seen that nearly 85 per cent of the patients anesthetized received the anesthetic for short periods—up to thirty minutes. However, 15 per cent of the patients were anesthetized for from thirty to sixty minutes. One patient was anesthetized for two hours, one for two and one-half hours, and one for four and one-half hours. In the longer anesthetizations oxygen was nearly always used with the divinyl ether.

We have exercised caution in the use of the anesthetic for long periods because of the possible danger of liver necrosis. When the anesthetic period exceeded thirty minutes we have in certain instances changed to another anesthetic agent. This has been done to provide maximum safety, although we have come to believe that, properly administered, the time limit need not be so rigidly adhered to. In the entire series we have observed no serious untoward results. The group up to thirty minutes consists of 2,257 patients and is large enough for us to state that, properly administered, the anesthetic is safe for this period.

We have frequently resorted to its use when operations under spinal anesthesia have extended beyond the time of spinal anesthetization. It has also been used during the closure of abdominal incisions when the relaxation afforded by nitrous oxide and oxygen was insufficient for secure closure of the wound. For this purpose it is ideal.

Forty-one patients have been anesthetized on more than one occasion during a single admission. Twenty-three patients were anesthetized twice, ten patients three times, four patients four times, and four patients five or more times during a single admission. In not a single instance did the repeated anesthetization result in any untoward complication.

ANESTHESIA

With extended experience we can well repeat what we said in our earlier paper. The stage of induction with divinyl ether is short, so short in fact that it is rare to observe analgesia without loss of consciousness,

except for the briefest interval. We have become accustomed to the rhythmic oscillation of the eyeballs that is observed frequently in light third stage anesthesia with this agent.

Laryngeal irritation is practically never observed, but we have had three instances of tight masseter spasm which was disturbing until an airway was introduced. This has always been observed during the early stages of anesthesia. It is not peculiar to divinyl ether anesthesia, since we have observed this complication with a variety of anesthetic agents.

In our earlier series we reported a stage of excitement in 2 per cent of our patients. In the present series, undue excitement lasting more than a few moments was present in twelve patients, which is less than 0.5 per cent. We believe that the reduction in the incidence of excitement is due to increased experience with the anesthetic, which permits of more rapid induction. Administered as it should be by experienced anesthesiologists, the rapidity of induction prevents a prolonged stage of excitement except in a very few.

Excessive mucus was present in nineteen patients, even though in nearly every instance the patient had received atropine sulfate prior to the anesthetization. The incidence of this annoying complication is so low, however, that it is of little consequence.

There have been six instances of marked cyanosis which was relieved either by the use of oxygen or

TABLE 2.—Length of Anesthesia

Up to 30 minutes.....	2,257
From 30 to 45 minutes.....	316
From 45 to 60 minutes.....	92
From 60 to 90 minutes.....	7
More.....	3

by reducing the amount of the anesthetic used. There have been no major respiratory complications in the series, although there have been several instances of postanesthetic bronchitis. We are again impressed with the absence of respiratory complications following divinyl ether anesthesia. In our first series we believed that the low incidence of postanesthetic respiratory complications was due to the selection of cases and to the unusual care incident to the first tests with a new anesthetic. These factors do not apply nearly so closely to the present series. It would seem that anesthesia with this substance is remarkably free from postanesthetic pulmonary sequelae.

The relaxation that has been obtained has been good. There have been several instances in which the surgeon believed the relaxation unsatisfactory, but in each instance the subsequent administration of diethyl ether did not afford greater relaxation. Every anesthetist and surgeon of experience has seen patients in whom it was difficult to obtain relaxation regardless of the anesthetic that was used. The fact that divinyl ether has practically supplanted every other anesthetic in the fluoroscopic reduction of fractures in the Hospital of the University of Pennsylvania means that the surgeons of the hospital are satisfied with the relaxation that the anesthetic affords.

Recovery from the anesthetic even after prolonged anesthesia is rapid when compared with diethyl ether or chloroform. It is, as a rule, more rapid than after nitrous oxide and oxygen anesthesia for a comparable period. The recovery is usually smooth, and is only rarely accompanied by any excitement. The postan-

thetic sensations are nearly always pleasant, so that patients have had little fear of subsequent anesthetizations.

Vomiting more than once during the period of recovery and immediately thereafter occurred in fifty-four patients. When all patients vomiting a single time, which included the simple eructation of mucus, are included, the total number was 173, which is slightly more than 6 per cent. Since the anesthetic was administered practically as a routine in the surgical outpatient department when a general anesthetic was required and on many other occasions when there had been no control of diet prior to anesthetization, the incidence of vomiting must be considered low.

The urine was not examined in many of these patients after operation, but in those in which this was done, which is in excess of 600, there was not a single instance in which the urinary changes suggested that the anesthetic was a renal irritant.

Three patients in this series of 2,675 anesthetizations died within one week following operation. In each instance an autopsy was obtained and the death was in no manner ascribable to the anesthetic. Although liver necrosis in the human being can occur with divinyl ether anesthesia, we have not encountered it in this series. We have avoided using it on patients with known extensive hepatic derangement. If our experience is a criterion, we feel safe in stating that post-anesthetic liver necrosis will not prove of any consequence when the anesthetic is properly administered for periods of anesthesia not exceeding one hour.

COMMENT

From our experience in a large number of patients anesthetized with divinyl ether we feel that the statement made by Leake and Chen⁴ in 1930 that substances possessing the pharmacologic and chemical characteristics of diethyl ether and ethylene would be interesting anesthetic agents has been further substantiated. The hope that divinyl ether would prove to be the ideal anesthetic agent has not materialized. By the ideal anesthetic we mean one that would supplant all known general anesthetic agents. Surely such a substance does not now exist. However, divinyl ether possesses many of the characteristics which the ideal anesthetic agent must offer.

Anesthesia can be rapidly induced, and recovery is equally rapid. The induction is more rapid than with diethyl ether or with nitrous oxide and oxygen. The incidence of excitement is considerably less than with either of these agents and the recovery is as a rule much more rapid. Minute for minute of maintenance of anesthesia, the recovery from divinyl ether requires only a fraction of the time necessary for diethyl ether.

The incidence of untoward complications in our series following the use of this substance is low. In this hospital where in the general, neurosurgical and urologic services a careful record has been kept for the past fourteen years of the major complications, the incidence of postoperative complications has been lower than with diethyl ether, nitrous oxide and oxygen or spinal anesthesia. It must be admitted, however, that it is difficult to compare data from one anesthetic with another without carefully considering the condition of the patient prior to anesthetization and the indications that led to the selection of one anesthetic over another.

We feel safe in recommending divinyl ether as a general anesthetic for the extraction of teeth, the reduction of fractures, the manipulation of joints and a large number of surgical procedures which do not require prolonged anesthesia but which may require any degree of relaxation. It has been found to be safe in a very wide range of ages and in patients with severe myocardial disease. Rapid induction, smooth maintenance and rapid recovery can be expected and obtained. Post-anesthetic vomiting is infrequent, and postoperative pulmonary complications in our experience are rare.

Reports from other clinics on the use of divinyl ether for anesthesia are now available (Bourne,⁵ Shipway,⁶ Bätzner,⁷ Killian,⁸ Dörfel,⁹ Marvin,¹⁰ Oehlecker¹¹). Bourne has had a fairly extensive experience with divinyl ether anesthesia in obstetrics, a field in which we have had no experience. He concludes that "divinyl oxide is a very suitable anesthetic for employment in obstetrics. It permits of rapid application, equally rapid recovery, and a satisfactory maintenance of any desired degree of narcosis with minimal danger to mother and child."

Dörfel's⁹ experience in the Surgical Polyclinic of Leipzig is similar to that of the surgical outpatient department of our hospital. He too found the anesthetic exceedingly useful because of the rapid induction and recovery and the infrequency of postanesthetic vomiting.

Bätzner⁷ concluded from his experience that the anesthetic was as safe as diethyl ether, provided as efficient relaxation as chloroform, and was as rapid in its induction as the sodium salt of *n*-methyl-cyclohexenyl-methyl barbituric acid and as rapid in recovery as nitrous oxide and oxygen. Oehlecker¹¹ found it to be advantageous in small children.

In the several instances in which liver necrosis has occurred¹² after anesthetization, it has in each instance been found to be associated with prolonged use, excessive dosage or coincidental anoxemia. Contrary to Leake's opinion, we believe that liver necrosis may occur following divinyl ether anesthesia over a long period when every precaution to prevent anoxemia has been taken. We have been able to produce in the dog a degenerative lesion in the liver following diethyl ether anesthesia when the available oxygen was reduced in concentration but 5 per cent below that found in air. Chloroform is still being widely used even though its tendency to produce liver necrosis greatly exceeds that of divinyl ether. While chloroform will produce liver necrosis in the dog following one hour of anesthesia, it requires three hours of divinyl ether to produce liver necrosis in the dog, and even then the extent of the necrosis is not so great. While it is more toxic to the liver than diethyl ether, it is not as toxic as chloroform.

This fact should not prevent the use of an anesthetic which possesses many of the qualities that are desired in an anesthetic agent. It does, however, lead us to state that it should be used as a rule for operative

4. Leake, C. D., and Chen, M. Y.: *Proc. Soc. Exper. Biol. & Med.* 25: 151 (Nov.) 1930.

5. Bourne, W.: *Lancet* 1: 566 (March 17) 1934; cited by Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh¹ and Waters and Schmidt.²

6. Shipway, F. E.: *Lancet* 1: 82 (Jan. 12) 1935.

7. Bätzner, W.: *München. med. Wchnschr.* 82: 933 (June 7) 1935.

8. Killian, H.: *Chirurg* 7: 433 (July 1) 1935.

9. Dörfel, E. W.: *Deutsche med. Wchnschr.* 61: 955-957 (June 14) 1935.

10. Marvin, F. W.: *Anesth. & Analg.* 14: 257 (Nov.-Dec.) 1935.

11. Oehlecker, F.: *München. med. Wchnschr.* 82: 933 (June 7) 1935.

12. Goldschmidt, Ravdin, Lucke, Muller, Johnston and Ruigh.¹ Goldschmidt, Ravdin and Lucke.³

procedures of short duration in which rapid induction and recovery and a minimum of postanesthetic effects are desired.

SUMMARY

1. Divinyl ether has been used in 2,675 anesthetizations in a number of clinical departments, for a wide variety of lesions requiring anesthesia, principally of the shorter type.

2. Anesthesia is rapidly induced and easily maintained, and recovery is rapid. Muscular relaxation is excellent.

3. The postanesthetic complications in our cases have been low.

4. No instance of liver necrosis has been observed in our patients, but this was guarded against because this agent is more toxic than diethyl ether although less toxic than chloroform.

5. For short anesthetizations the anesthetic can be administered by the drop method, but for periods of anesthesia exceeding forty-five minutes the simultaneous administration of oxygen is advisable. Only a few of our patients were anesthetized for longer than forty-five minutes.

6. For a wide variety of operative procedures of short duration we believe that divinyl ether is a most useful anesthetic substance.

THE USE OF UREA IN THE TREATMENT OF INFECTED WOUNDS

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SAN DIEGO, CALIF.

AND

EATON M. MACKAY, M.D.

LA JOLLA, CALIF.

Urea in strong solution has a peculiar property of being able to "dissolve" proteins and protein substances. First noted by Spiro,¹ this lytic property was not thoroughly examined until discovered independently by Ramsden.² This "dissolving" of proteins occurs in neutral solutions or solutions of varying degrees of alkalinity or acidity, and since urea is a relatively inactive substance it occurred to one of us that it might be useful in wound therapy for the removal of mucus and other exudates, encrustations and necrotic tissue. Since commencing its use we have found that other investigators have already utilized it for the same purpose but for a different reason. Symmers and Kirk³ more than twenty years ago, as a result of certain bactericidal properties they observed in urea solutions, used this chemical for the dressing of wounds, with excellent results. Millar⁴ in a short note several years ago suggested the use of urea to suppress the foul odors of sloughing cancer. Foulger and Foshay,⁵ impressed with the bactericidal action of urea, have also used it for treating infected wounds of various sorts with good results. Despite these favorable reports, urea therapy in the treatment of wounds has not attained any wide usage.

From the Scripps Metabolic Clinic, La Jolla, and the San Diego General Hospital.

1. Spiro, K.: Ueber die Beeinflussung der Eiweisscoagulation durch stickstoffhaltige Substanzen, *Ztschr. f. Physiol. Chem.* **30**: 182, 1900.

2. Ramsden, W.: Some New Properties of Urea, *J. Physiol.* **28**: xxiii, 1902.

3. Symmers, W. St. C., and Kirk, T. S.: Urea as a Bactericide, and Its Application in the Treatment of Wounds, *Lancet* **2**: 1237, 1915.

4. Millar, W. M.: Urea Crystals in Cancer, *J. A. M. A.* **100**: 1684 (May 27) 1933.

5. Foulger, J. H., and Foshay, Lee: The Antiseptic and Bactericidal Action of Urea, *J. Lab. & Clin. Med.* **20**: 1113 (Aug.) 1935.

Our successful experience with urea therapy of infected wounds prompts the present report of the use of this therapeutic agent. We have used both the solid crystals and saturated solutions. Formerly synthetic urea of German origin was utilized. More recently synthetic urea has become available in this country (Du Pont) for the first time and can be purchased in 100 pound sacks at from 5 to 10 cents per pound, depending on the quantity purchased. It requires no further preparation for medicinal use.

So far a total of 139 cases have been treated with urea. These may be classified in the broad groups shown in the accompanying table. In no case did the application of urea in solution or as the crystals have any deleterious effects. Although in a few cases the application of urea did not appear to influence the course of the condition, the clinical impression was gained that not only was urea therapy efficient but it was far more successful than the common therapeutic agents used for infected wounds. There are so many factors in each case that it is very difficult to determine the relative efficacy of various medications. These case differences make controls impossible except in the very broadest sense. However, in many of the cases the good results were startling both in long standing lesions that had resisted ordinary treatment and in more recent pathologic conditions in which the result exceeded the usual expectations with diluted solution of sodium hypochlorite or other agents. The best results were obtained with the chronic ulcers, although most of the infected wounds became healed more quickly than can usually be expected. The less positive results for the "infectious group" may have been due to the greater cautiousness with which the urea was used in these cases. This agent cannot be used sparingly if successful results are to be expected. Several cases of osteomyelitis responded poorly to the treatment, but this may have been because the crystals were used and the exudate may have been insufficient to allow it to penetrate. It is obvious that the solution is the application method of choice in any condition in which a sinus or

Classification of Cases

I. Ulcers	
Varicose with skin grafting.....	3
Varicose without skin grafting.....	12
Trophic	3
Decubitus	16
II. Infected wounds	
Operative with drainage.....	22
Operative-secondary infection	8
Traumatic	26
III. Infections	
Carbuncles	9
Cellulitis	13
Burns (2d and 3d degree).....	18
Osteomyelitis	11

fistula is involved. Several typical results of the use of urea in individual cases are presented here:

CASE 1.—J. S., a youth, aged 17, injured the lower third of the left tibial crest in a football game and a trophic-like ulcer developed on the skin. Prolonged treatment with several commonly employed bactericidal agents failed to be effective, and the margin of the ulcer became further undermined with progressive enlargement. Ten days' application of urea crystals eliminated all infection, giving a healthy granulating base which was successfully grafted with Thiersch grafts. Thio-urea (8 per cent) was used as a wet dressing with 90 per cent successful growth of grafts and complete epithelization. The patient was discharged home cured twenty-one days from the onset of treatment.

CASE 2.—N. V., a man, aged 33, struck the anterior portion of the right leg midway between the knee and the ankle on a tent stake one month prior to admission and caused a slight abrasion. The usual methods of treatment for three weeks were not productive of healing and five days before admission to the hospital the unhealed area became sore and inflamed and this increased in severity. On the first examination the lesion was about the size of a half dollar (30 mm.) with undermined skin edges, a gray sloughing sore and an extensive surrounding area of cellulitis. The purulent discharge possessed a very foul odor. Initial treatment consisted of complete bed rest, elevation of the extremity and continuous hot saturated wet dressing of magnesium sulfate from the foot to the groin. This treatment was continued for four days with no improvement but rather a progressive extension of the ulceration of approximately one-fourth inch (6.4 mm.) daily. The wet dressings were discontinued and Dakin's technic was instituted for the following three days with no improvement and gradual extension of the tissue destruction, so that the ulcer area now measured about 5 by 6½ inches (13 by 16 cm.). At this point the area was packed once daily with urea crystals and, following the second application, definite clinical improvement was noted. Four days thereafter, or six days from the commencement of treatment, the necrotic tissue had completely disappeared, leaving a clean granulating base in which there were scattered islands of epithelium. Application of wet dressings of thio-urea for thirteen days produced complete and satisfactory healing without the necessity of skin grafting.

CASE 3.—M. C., aged 15 years, was struck in the left ankle with a rock and sustained a slight skin abrasion over the lateral malleolus and what was thought to be a sprain. X-ray examination at the time of the accident was negative for bone injury. The ankle gradually improved during the following thirty days and then progressively became worse, the symptoms extending over a period of six months. A roentgenogram taken at this time showed an extensive osteomyelitis involving the distal third of the fibula. Operation was performed and the involved bone removed; the wound was packed with petrolatum gauze and a plaster cast applied. On the fifth postoperative day a window was cut in the cast over the operative incision, the petrolatum packing was removed and the wound packed with urea crystal-picric acid mixture. Complete healing occurred in two months; the patient recovered entirely and was walking with no loss of function in three months. A check-up x-ray examination showed complete and satisfactory regeneration of the bone in the involved area. Many other more extensive and chronic cases of osteomyelitis have responded just as satisfactorily in the presence of adequate drainage. It was necessary in a number of these cases to use urea in saturated solution irrigated through catheters or Dakin's tubes placed in the multiple sinuses.

CASE 4.—T. S., aged 72, had a carbuncle which on admission, Nov. 1 1935, involved the entire intrascapular region. The temperature on admission was 103 F. The patient was irrational and toxic and appeared very ill. Urinalysis showed a trace of albumin and sugar, hyaline casts and an occasional white blood cell. A blood count revealed red blood cells 4,200,000 with 78 per cent hemoglobin, white blood cells 8,000 with polymorphonuclears 80 per cent, lymphocytes 18 per cent and monocytes 2 per cent (poor response). The carbuncle in the shoulder was opened with cruciate incisions with the actual cautery; the flaps were well undermined to the healthy tissue and the wound was packed with urea crystals. Mild glycosuria was controlled and the patient was given the usual supportive treatment. The following day the temperature was 99.6 F., and the patient was comfortable. The third day the temperature was normal and remained so for the remainder of convalescence. The wound was clean, with healthy granulation tissue in three weeks. Thio-urea was then applied with complete healing, without the necessity of skin grafting, on the thirty-sixth day (five weeks) after operation.

CASE 5.—J. P., aged 14, accidentally sustained a shotgun wound of the right upper thigh and buttocks. The original defect and tissue loss measured about 6 inches (15 cm.) in diameter. Débridement was done under general anesthesia; dirt, débris, shot and devitalized tissue were removed and tetanus antitoxin was given. The wound edges were closed as well as possible and the remaining central cavity was packed

with urea crystals. A clean granulating wound was obtained in two weeks and, following further application of thio-urea, complete healing without the necessity of skin grafting obtained in another two weeks. The patient was ambulatory with no loss of function. (This was a remarkable result considering the defect.)

There appears to be no condition that the application of urea might possibly aid in which it is contraindicated. Urea is practically nontoxic and harmless in any reasonable quantity. For this reason and because of its cheapness it may be used liberally. Some antiseptic agents, particularly the various chlorine solutions, are unstable. Urea in the dry state is permanently stable and in strong solution remains unaltered for any length of time that one may wish. Even in contact with an open wound, urea retains its activity and is undecomposed. With urea therapy the danger of burning the surrounding skin is avoided. Urea appears to be without effect on living tissue, although in strong solution or as a crystal pack it may be rather painful on the wound or on mucosal surfaces. The best evidence that it is innocuous rests in the fact that even in gross quantities it does not cause necrosis of Thiersch grafts, an observation that was also noted by Symmers and Kirk.³ The most obvious virtue of urea is the removal of the foul odor of suppurating wounds, and this without replacing one odor by another, as in the case of many deodorants.

The use of urea that we have discussed here should not be confused with the recent report of Robinson⁶ reviewing the results of a number of practitioners in using a 2 per cent urea solution in the treatment of chronic and purulent wounds. This concentration of urea is too low to have any appreciable "solvent" action and we have been unable to obtain any evidence that urea directly stimulates healing, as this author seems to suggest. This investigator is of the opinion that urea, like allantoin, may be a metabolic product of living maggots which contributes to the healing action of maggot therapy.⁷

Possibly a better view, particularly in the light of critical surgical experience, is that therapy with maggots owes its success solely to the "scavenger action" of Baer that is produced by their ability to dissolve and digest dead tissue and débris.⁸ In this connection the results with 2 per cent urea solutions are more explicable. All dead tissue tends to undergo autolysis, and Ramsden² showed long ago that 2 per cent urea has a marked effect in promoting the digestion of fibrin by proteolytic enzymes. In the concentrations of urea that we have used, on the other hand, we know that enzyme activity is definitely inhibited. For practical purposes we are doing chemically with strong urea solutions what normal tissue enzymes may do to some extent or what maggots may do in localized areas. The effect on healing in all cases is probably entirely passive; i. e., the procedures have no direct influence on cell growth or epithelization but only aid this to proceed normally by removing dead tissue, dried secretions and other hindrances. In addition, as we have pointed out, strong urea solutions have some bactericidal effects and an even more definite bacteriostatic influence, which is most desirable in infected wound therapy.

6. Robinson, W.: Use of Urea to Stimulate Healing in Chronic Purulent Wounds. *Am. J. Surg.* 33: 192 (Aug.) 1936.

7. Baer, W. S.: The Treatment of Chronic Osteomyelitis with the Maggot. *J. Bone & Joint Surg.* 13: 438 (July) 1931.

8. Messer, F. C., and McClellan, R. H.: *J. Lab. & Clin. Med.* 20: 1219 (Sept.) 1935.

Two⁹ of the three previous users of urea for wound therapy were prompted to use it because of its bactericidal effect. Ramsden² originally noted that in a saturated urea solution no putrefaction ever takes place. Péju and Rajat¹⁰ and later Wilson¹¹ noted the influence of urea on bacterial growth. Foulger and Foshay⁵ recently added to these data. In experiments to be presented elsewhere we have found that urea solutions of less than 15 per cent are not uniformly bacteriostatic and that those of less than 30 per cent not usually bactericidal. In the case of the common pyogenic organisms, the staphylococcus is the most resistant to urea action. Our experience has led us to conclude that urea in any concentration is not a really good germicide and that, although most certainly a contributing factor, bactericidal activity is not the chief influence in the usefulness of this substance for wound therapy.

With the end in view of giving urea solutions a more marked destructive action on bacteria, the addition of various substances to these solutions is now being examined. Calcium picrate¹² has been suggested for the treatment of osteomyelitis. "Urea picrate" is a loose compound and is now being tried out in combination with urea solutions. Phenol has been used to irrigate filthy chronically infected bladders. This acid forms an unstable compound with urea, and we are now investigating "urea phenolate" in strong urea solutions for this purpose. The phenol tends to reduce in some degree the pain incident to the presence of the strongly hypertonic urea solution on the mucosa. Many other combinations could be suggested and should be tried out.

Robinson,⁶ as we have noted, is apparently of the opinion that urea directly stimulates healing. It is our opinion that this is not the case either in the mechanism of maggot therapy or with strong urea solutions. It seems more reasonable that in both cases conditions deterrent to healing are simply removed. However, there are certain compounds, notably those with the sulfhydryl group such as cysteine, thioglycerol and thiophenol, which appear definitely to have the ability to increase the rate of cell division and particularly epithelization. There seems to be no reason why these cannot be used in conjunction with urea solutions. In particular we have given thio-urea some trial and this gives promise of increasing the rate of wound healing quite apart from the more indirect effects of strong urea applications.

SUMMARY

The application of gross quantities of urea crystals or of strong to saturated aqueous urea solutions to infected wounds of various types definitely hastens healing and is frequently efficacious when other therapeutic agents are ineffective. Urea application is cheap, does not irritate the surrounding normal tissue and practically obliterates all odor arising from an infected wound. The mechanism of urea therapy is probably in part by virtue of the bactericidal effect of strong urea solutions but chiefly through the solvent action on proteins, which leads to a removal of the debris, encrustations and dead tissue, which mechanically and by harboring bacteria are usually the chief deterrents to normal healing.

9. Symmers and Kirk.² Foulger and Foshay.⁵

10. Péju, G., and Rajat, H.: Note sur le polymorphisme des bactéries dans l'urée, *Compt. rend. Soc. de biol.* 61: 477, 1906.

11. Wilson, W. J.: Pleomorphism, as Exhibited by Bacteria Grown on Media Containing Urea, *J. Path. & Bact.* 11: 394, 1906.

12. Stewart, M. A.: A New Treatment of Osteomyelitis, *Surg., Gynec. & Obst.* 58: 155 (Feb.) 1934.

Clinical Notes, Suggestions and New Instruments

ALLERGY TO DYES

CONTACT DERMATITIS FROM EASTER EGG DYE—ASTHMA AND
URTICARIA FROM METAPHEN

LEO H. CRIEP, M.D., PITTSBURGH

The type of manifestations that may be found in individuals allergic to dyes depends largely on the sensitive tissue. If the allergy is limited to the epidermis the lesion is contact dermatitis, while if the dermis is involved urticaria results. If the allergy is in the mucous membrane of the bronchi and bronchioles, bronchial asthma develops.

The following is an account of these various allergic manifestations occurring in two dye-sensitive patients:

REPORT OF CASES

CASE 1.—*Contact dermatitis due to Easter egg dye.* A child, aged 4 years, presented a history of flexor eczema (dermatitis involving the elbows, knees, face and neck) since early infancy. There was a strong family history of allergy. The blood showed an eosinophilia. The allergic survey and intradermal tests revealed sensitivity to several foods. Allergic treatment resulted in complete disappearance of eczema. Six months later the patient developed an extensive vesicular dermatitis involving the hands, forearms and face. The history elicited the information that the child had been painting Easter eggs with dyes that come put up in the form of matches. Investigation revealed that the colors used in these matches are oil blue G (alkyl aryl amino anthraquinone); oil red N-1700 (diazo dye belonging to the tolyl azo-zylyl azo-naphthol family); oil orange 7078 (monazo dye of the phenyl azo-naphthol group) and oil yellow. In addition, there is a small amount of ordinary commercial wax and sulfonated castor oil.

Intradermal tests with these dyes were negative, as was to be expected, since the allergy in this patient is limited to a sensitivity of the epidermis only. Patch tests, however, gave a positive reaction to red and orange but no reaction to the wax, castor oil or other dyes. Local symptomatic treatment and absolute avoidance of these dyes brought about complete relief.

CASE 2.—*Urticaria and bronchial asthma due to metaphen.* A man, aged 46, was first seen five years before, when he gave a history of bronchial asthma of ten years' duration. Occasionally there would be a mild attack of urticaria. There was no family history of allergy. Epinephrine would give him symptomatic relief. A blood smear showed an eosinophilia. Allergic survey and intradermal tests revealed the presence of sensitivity to several inhalants (feathers, orris root and the like) and foods. Allergic treatment rendered him completely symptom free for about two years, after which period he returned to the clinic and gave the following history:

While working in the mill he bruised his finger, the skin being only slightly abraded. He presented himself at the emergency hospital, where it was dressed after the application of metaphen. Within a half hour after this application a very severe attack of asthma developed, which lasted practically the entire night in spite of the administration of repeated injections of epinephrine. A week later, when the finger was dressed with untinted metaphen, no reaction occurred. This was repeated two days later with the same results. At this time scratch tests and intradermal tests with both the tinted and the untinted metaphen were negative, but following the tests with the tinted metaphen, and ranging from a half hour to three hours after the tests were performed, a very severe attack of asthma developed which lasted practically the entire night. Patch tests performed with both the tinted and the untinted metaphen were negative. After the patch test was performed with tinted metaphen, an attack of asthma developed. No such attack resulted from the patch test performed with the untinted product. Information received from the Abbott Company states that the dye employed in metaphen is orange I. The dye is also called tropeolin 000 No. 1 and alphanaphthol orange. Chemically it is sodium azo alphanaphthol sulfanilate ($C_{16}H_{11}N_3O_2SNa$). Scratch tests and intradermal tests were then performed with

the dye alone (dilutions of 1:1,000 and 1:100) and a negative skin reaction occurred. Several weeks later, after all symptoms disappeared, an area on the arm the size of a silver dollar was painted with the orange dye. Two hours after the arm was painted a severe attack of asthma developed accompanied by generalized hives. These lasted over a period of about ten hours, necessitating the frequent administration of epinephrine. The procedure was repeated with exactly the same results several days later. It is interesting that when his left arm was painted with the orange dye, large hives and a massive swelling accompanied by itching, which lasted for a period of forty-eight hours, developed on the right arm at the point where the scratch test was done several days previously with the tinted metaphen. Complete avoidance of exposure to the tinted metaphen resulted in complete relief.

The allergy presented by this patient is one that involves a sensitivity of the dermis (urticaria) and the mucous membrane of the bronchi and bronchioles (bronchial asthma). It illustrates the nonantigenic nature of dyes as shown by the absence of demonstrable antibodies (reagins), for this patient gave a negative scratch and an intradermal skin test as well as a negative passive transfer to the dyes to which he is no doubt allergic.

1004 May Building.

LAUGHLIN'S TEST FOR THE SERODIAGNOSIS OF SYPHILIS

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The serologic diagnosis of syphilis is at present complicated, time consuming and expensive. A rapid, cheap and reliable method of diagnosis is highly desirable. Laughlin¹ has recently described such a method and it is our purpose in this brief communication to report on its use in 1,000 serums taken in a routine manner from hospital patients. In Laughlin's test a drop of reagent is added to a drop of serum or spinal fluid on a glass slide, which is then tilted repeatedly and observed at frequent intervals in an indirect light. The reagent is prepared by adding tincture of benzoin compound, cholesterol, scarlet red and physiologic solution of sodium chloride to an alcoholic extract of beef heart. The reader is referred to the original communication for the exact details of preparation. A positive reaction is recognized by the macroscopic appearance of coarse red particles which rapidly increase in size, whereas when the reaction is negative the fluid remains homogeneous.

Laughlin compared the results obtained by his test with those of the Wassermann and Kahn tests on four hundred serums and found his results to be in agreement with the Wassermann test in 98 per cent of serums and with the Kahn test in 99 per cent. He made the same comparison with the serums of 118 patients receiving antisyphilitic treatment and found that his test agreed with the Wassermann test in 93.5 per cent and with the Kahn test in 97 per cent of the cases.

When the three tests were done simultaneously on 1,000 serums in our laboratories it was found that the Laughlin test was in accord with the Wassermann test in 93 per cent of serums and with the Kahn test in 97 per cent, thus confirming with surprising exactitude Laughlin's results. In this series of 1,000 cases the reagent employed was prepared by us according to Laughlin's directions. In an additional series of fifty serums Laughlin's reagent was supplied by the Lederle Laboratories, and the results obtained were in accord with simultaneous Wassermann and Kahn tests in every instance. We have found the Laughlin test equally reliable when cerebrospinal fluid is tested.

This test offers a simple and rapid quantitative estimation of serologic positivity because the degree of positivity is read in terms of seconds required to react with the reagent. Therefore this test is of great value in following the response of serums of patients under treatment.

Some experience and skill are required in the balancing of Laughlin's reagent, for it must be so adjusted that a positive reaction is given with serums showing a one plus Wassermann reaction and no reaction to serums which are negative to the Wassermann test. This adjustment is readily made. Because

From the Departments of Medicine and Bacteriology, Duke University School of Medicine.
1. Laughlin, G. F.: A Rapid Test for Syphilis. *Canad. M. A. J.* 33:179-183 (Aug.) 1935.

of its simplicity and speed the test is useful in testing donors for emergency blood transfusions, as a rapid preliminary test for suspected syphilitic meningitis and for emergency work in the outpatient clinic.

CONCLUSIONS

1. The Laughlin test is a simple, practical and reliable test for syphilis.
2. The degree of positiveness can be read in terms of seconds required to react with the reagent.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION
OF THE FOLLOWING REPORTS.
HOWARD A. CARTER, Secretary.

ANNUAL MEETING

The Council on Physical Therapy held its annual meeting January 8 and 9. The following members were in attendance: Drs. W. W. Coblenz, John S. Coulter, A. U. Desjardins, W. E. Garrey, Frank H. Krusen, Harry E. Mock, Frank R. Ober, Ralph Pemberton, H. B. Williams, Olin West, Morris Fishbein and Mr. Howard A. Carter.

Dr. Harry E. Mock was reelected chairman, and Dr. W. E. Garrey was elected vice chairman to take the place of Dr. F. J. Gaenslen, who resigned because of illness and the news of whose death came as this report was being prepared for publication.

Dr. Gordon Heyd, President of the American Medical Association, and Dr. Rock Sleyster, Chairman of the Board of Trustees (who were attending the meeting of the Board of Trustees at the same time) gave personal greetings. The members of the Council expressed their appreciation for the enlarged facilities recently made available to them at headquarters.

CHANGES IN MEMBERSHIP

There has been a change in the personnel of the Council in the past year. Drs. George M. MacKee and Robert B. Osgood have resigned. Dr. Osgood resigned because of other more pressing duties, and Dr. MacKee was obliged to curtail his activities. Dr. Frank R. Ober was appointed to fill the vacancy left by Dr. Osgood, Dr. George C. Andrews to fill the vacancy left by Dr. MacKee, and Dr. Frank Dickson to take the place of Dr. Gaenslen. The personnel remains at twelve.

RESEARCH GRANTS

Grants in aid of research are awarded to those persons who demonstrate that they have a problem of merit. Accomplishments of those receiving such grants were looked on with satisfaction. However, the Council felt that there may be more physicians and investigators working on physical therapy problems desiring aid, and it was believed that announcement should be made in scientific journals concerning the availability of these grants of limited sums.

ULTRAVIOLET GENERATORS

In view of the progress that has been made by the Council on Foods in the consideration of vitamin D milks and fortified vitamin D foods and the progress made by the Council on Pharmacy and Chemistry in the consideration of vitamin D concentrates, it was the opinion of the Council on Physical Therapy that the standards for the acceptance of ultraviolet generators should be revised.

EDUCATIONAL ACTIVITIES

The Council expressed its approval of the work of the Committee on Education of the Council and also of the activities of the Consultants on Education who have been aiding in the promotion of physical therapy among practicing physicians. In the opinion of the Council, the tremendous inertia caused by the indifference of the profession to the practice of physical therapy, which existed eleven years ago when the Council was established, has been largely overcome, and resistance at the present time is merely passive. The Council felt that it was important to get in contact with young physicians and undergraduate students in medicine. It was gratifying to learn that many of the younger physicians are specializing in the field

physical therapy for the purpose of taking over departments of physical therapy in schools of medicine. The Council felt that postgraduate instruction in physical therapy might well be carried on under the auspices of the graduate schools of medicine. The following Consultants on Education were reelected: Dr. Bernard Fantus, Dr. A. J. Kotkis, Dr. Richard Kovács and Dr. Franklin P. Lowry. Dr. William H. Schmidt was appointed to take the place in Pennsylvania vacated by Dr. Krusen.

The Council believed that the time was about due for an investigation of spas, sanatoriums and similar health resorts and that this work should be carried out under the direction of the Council on Medical Education and Hospitals.

Suggestions for experiments in physics, bearing on subjects of interest to medical students, the Council decided might well be prepared and distributed to college teachers of physics.

CONSIDERATION OF SHOES

Progress has been made in the consideration of shoes. The preparation of just specifications and requirements to be met was found to be more difficult than was originally expected. This accounts for the delay in reports on shoes submitted to the Council.

LIMITATIONS OF SHORT WAVE DIATHERMY

Much of the work of the Council the past year has been confined to the consideration of so-called short wave diathermy machines. In view of the deliberations, the Council believed it was justifiable to state, based on the present available evidence, the following conclusions:

1. There is no specific biologic action of high frequency currents.
2. There is no specific bactericidal action.
3. The therapeutic effect is due to the heat produced.

Elaborating on these three conclusions, the Council felt that the general practitioner should understand that when he buys a short wave diathermy machine he is simply purchasing an apparatus capable of producing heat. In the light of available evidence, it has absolutely no other specific action. The Council felt that, if this point was understood by the physician in general practice, he might hesitate before purchasing an expensive apparatus, because simpler mechanical means for the production of heat are available and as efficacious in many cases. For the specialist in physical therapy having a sufficient number of cases, the expense of a short wave diathermy machine might not be so important.

The question arose in the minds of the Council whether there was too much emphasis being placed on machine therapy. It was pointed out that the Council went on record several years ago to the effect that physical therapy consists of 90 per cent intelligent handwork which may be accomplished by heat, massage and exercise, and 10 per cent machine therapy. The short wave diathermy machine, for example, is a useful therapeutic agent, but in the light of the present day evidence its therapeutic effect is that of heat and heat only. The Council reaffirmed its stand to continue the consideration of all short wave machines submitted by the methods that have been followed during the last two years. If only minor changes have been made in accepted units, the Council decided that these alterations may be dealt with independently.

RADIO INTERFERENCE

Interference with radio communication by short wave diathermy has been reported. The Council voted that, in the future, acceptable diathermy machines must be fitted with line filters or other devices to eliminate "feed back" of high frequency current in the power supply lines. The Council plans to enforce this rule in ninety days.

SEAL OF THE COUNCIL

A seal denoting acceptance of a product by the Council has been adopted. The Council also voted that decalcomanias be made available to those who desire to use the seal on apparatus and advertising. Electrotypes of the seal may be obtained from THE JOURNAL.

PUBLICATIONS OF THE COUNCIL

The Council was gratified by the response of the profession now that the original printing of 4,000 copies of the Handbook

is entirely exhausted and that a second printing is necessary. The booklet Apparatus Accepted has been reprinted also. The Council voted that, when it is revised, it be made larger by the addition of general discussion, and that the general appearance be made to conform with that of New and Nonofficial Remedies.

D. C. A. PORTABLE DIATHERMY MACHINE NOT ACCEPTABLE

Manufacturer: Diathermy Company of America, 102 West Forty-Second Street, New York.

The D. C. A. Portable Diathermy Machine is a small unit which is advertised and sold directly to the public by lay salesmen, who are provided with pamphlets and testimonials of lay users. Instruction for its use is given largely by the salesmen.

A copy of the advertising matter, which has been referred to the Council, contains statements such as: "Treat yourself to Health . . . Scientifically—Here is a mild, safe way to get relief from torturing pains without doping yourself with drastic drugs. Diathermy is a scientific method that has been accepted by all leading physicians and hospitals . . ."; "When treating yourself with D. C. A. Diathermy you have no further need for pills, powders, or prescriptions"; "Diathermy not only relieves the pains you already have—it will stop many before they start"; "Diathermy (inner heat) goes deep into the binding congested area—and stays in. People suffering from the following ailments are invited to try diathermy at our expense:—Arthritis, Neuritis, Sciatica, Lumbago, Neuralgia, Pneumonia, Bronchitis, Gout, Asthma, Hay Fever, High blood pressure, Sinus disorders, Poor circulation and many other ailments"; "Only with Diathermy can you expect blessed relief—try it."

One part of the advertisement reads: "No obligation for free home demonstration by trained technician. We have at your disposal a staff of trained technicians who will demonstrate a D. C. A. Diathermy instrument to you in your own home. This visit is without cost or obligation to you. Upon your request by either phone or mail we will be glad to make an appointment to send one of our technicians. D. C. A. Diathermy instruments can be rented for short periods."

The machine appears to weigh about 25 pounds. It is a spark gap machine, equipped with intensity controls and electrodes for application.

In the opinion of the Council on Physical Therapy, the Diathermy Company of America is practicing methods that are detrimental to rational therapeutics. The use of promotional sales methods by those unqualified to practice medicine constitutes an appeal to the public with arguments which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

In view of the foregoing, the Council voted not to include the D. C. A. Diathermy Machine in its list of accepted devices.

AN APPRECIATION

The Council on Physical Therapy wishes to acknowledge, with appreciation, the efforts of the following consultants who have so generously contributed their time to the Council by assisting in the investigation of apparatus and the consideration of other problems that have confronted the Council: Drs. Fred L. Adair, Francis Heed Adler, M. Herbert Barker, William Bierman, Walter Boothby, Joseph Brennemann, Curtis Burnam, Anthony Cippollaro, George M. Coates, L. F. Curtiss, L. W. Dean, Géza de Takáts, F. H. Ewerhardt, Bernard Fantus, Samuel Feinberg, E. P. Fowler, Jonas Friedenwald, Sanford Gifford, F. B. Gordon, Samuel Gordon, Henry Hartig, Austin Hayden, Allan Hemingway, John Severy Hibben, Isaac H. Jones, Kenneth Karl Jones, Frederick T. Kidner, Disraeli Kobak, A. J. Kotkis, Richard Kovács, Henry Laurens, Franklin P. Lowry, Douglas MacFarlan, John MacNie, S. A. Morton, Tell Nelson, Horace Newhart, Robert B. Osgood, Charles Peabody, George Pfahler, John Pribble, Edwin Ryerson, R. Plato Schwartz, B. R. Shurly, Alfred Steegmann, K. W. Stenstrom, Ivan B. Taylor, Clifford B. Walker, Ralph Waters, W. P. Wherry, Miss Gertrude Beard and Mr. S. L. Osborne.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

AS A RESULT OF ITS CONSIDERATION OF EVIPAL SOLUBLE, THE COUNCIL VOTED THAT THE DRUG BE DECLARED UNACCEPTABLE UNTIL MORE TRUSTWORTHY METHODS ARE AVAILABLE FOR DETERMINING THE SAFE AND EFFECTIVE DOSAGE UNDER A WIDE VARIETY OF CONDITIONS, UNTIL THE CONTRAINDICATIONS—BOTH RELATIVE AND ABSOLUTE—HAVE BEEN ADEQUATELY DETERMINED, AND UNTIL COMPREHENSIVE PHARMACOLOGIC STUDIES MAKE POSSIBLE THE FIXING OF RESPONSIBILITY OF THE ANESTHETIC IN MANY OF THE AVAILABLE CLINICAL REPORTS OF ACCIDENTS.

ALTHOUGH IT IS NOT THE USUAL CUSTOM OF THE COUNCIL TO SUBMIT TO MANUFACTURERS REPORTS ON PRODUCTS WHICH HAVE NOT BEEN PRESENTED, THE COUNCIL SENT THE WINTHROP CHEMICAL COMPANY, INC., THE REPORT OF ITS CONSIDERATION. THE FIRM REPLIED ON ITS OWN ACCOUNT AND SENT ALSO A REPLY OF DR. WEESE, SOME OF WHOSE WORK WAS DISCUSSED IN THE REPORT. AFTER DUE CONSIDERATION THE COUNCIL HELD THAT NEITHER OF THESE REPLIES OFFERED ANY WARRANT FOR CHANGING ITS DECISION THAT THE PRODUCT IS AT PRESENT UNACCEPTABLE. THE COUNCIL ADOPTED THE FOLLOWING STATEMENT (WHICH IS SUBSTANTIALLY THAT SENT TO THE FIRM) FOR PUBLICATION AS A PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

EVIPAL SOLUBLE

The Winthrop Chemical Company, Inc., has been very active in promoting Evipal Soluble in the United States. It has not, however, presented the product to the Council on Pharmacy and Chemistry. The Council was therefore obliged to take up the consideration on its own initiative.

Evipan (Cyclural), C-C-Cyclohexenyl-N-methyl-barbituric acid, was prepared in the Elberfeld Chemical Laboratory, and in 1932 it was introduced under the name Endorm as a hypnotic having a brief action. Evipan is slightly soluble in water, but the readily soluble salt, Evipan Sodium, was introduced as a general anesthetic to be injected intravenously. The product is still known abroad by the term Evipan, or Evipan Soluble (for the sodium salt). In the United States, Evipal Soluble (Cyclural Soluble) is the market name. Both names (Evipan Sodium and Evipal Soluble) are used in this report, because both are used in the literature; in general, the name Evipal Soluble is used for the product sold in this country and Evipan Sodium for that sold abroad. The ending "al" makes the product consistent with the terminology accepted for most of the hypnotics of the barbituric acid series.

I. PHARMACOLOGY

It would seem almost trite to state that there can be no rational therapeutic use of an agent without adequate knowledge of its pharmacologic actions, but the following discussion of available literature shows that Evipan Sodium was introduced into general use before adequate pharmacologic investigations had been made.

Weese,¹ the director of the pharmacologic laboratories of the I. G. Farbenindustrie A. G. Elberfeld, determined the hypnotic, narcotic and fatal doses of Evipan Sodium for the cat and mouse by oral administration, for the mouse by subcutaneous injection, and for the cat and dog by intravenous injection. He reported that the intravenous narcotic dose for the cat is 25 mg. per kilogram and that the fatal dose is from 100 to 110 mg. per kilogram; that the therapeutic ratio for the cat is 4, while that for the dog is 3.3. He stated that it lacks local irritant actions and side actions as well as after-effects; that the slight affinity for the vital organs explains the slight toxicity and broad therapeutic margin.

Weese² explained later that the action of Evipan Sodium is brief after its intravenous injection because it is destroyed rapidly in the liver, little being excreted in the urine. The narcotic action is prolonged when the function of the liver is impaired. Weese stated that a fatal dose always causes death in the cat by paralysis of respiration. This has been interpreted to apply to man, in which case it is dangerously misleading.

Weese² described six stages of narcosis. That stage which is always induced by the intravenous injection of 25 mg. per kilogram in the cat is termed "rausch." In this stage there is confusion without abolition of the reflexes, but full anesthesia with loss of the reflexes was not always induced with doses

of less than 30 mg. per kilogram. This shows, of course, a lower therapeutic ratio than 4, but the latter fact has been ignored by many who have cited Weese's therapeutic ratio, even when they used full anesthetic doses, with loss of reflexes.

Parsons³ "found that in the cat 0.1 c.cm. of a 10 per cent solution caused a fall in B. P. of 25 mm. Hg. with slow recovery and apnoea for 20 seconds. After a total of 0.6 c.cm. of 10 per cent solution [60 milligrams] artificial respiration was needed and the B. P. fell until death." The rate of the injection is not stated, but these figures suggest a factor of safety, or therapeutic ratio of 2 for full anesthesia [Weese's sixth stage]; they are also in harmony with the results of experiments on guinea-pigs reported by Kennedy, but they are not in harmony with the statement of Weese.

Kennedy⁴ reported a therapeutic index of 4 for mice. There was great variation in the fatal dose, and the therapeutic ratio based on the smallest fatal dose is about 3. Kennedy found guinea-pigs more susceptible than mice, but he does not state the therapeutic factor for these. A dose of 0.4 mg. per 10 Gm. of weight did not produce unconsciousness, and none survived a dose of 1 mg.; hence the indicated therapeutic ratio is evidently less than 2.5. There is no justification for assuming that the therapeutic ratio for man is less than that for the guinea-pig, but these figures have been ignored almost completely by those who used Evipan Sodium for narcosis.

Kennedy observed that sneezing preceded narcosis in mice and that opisthotonos occurred in 25 per cent of the animals before complete muscular relaxation was induced. Many exhibited a fine tremor or violent shaking of the whole body, which was lessened by warming. Death resulted from failure of respiration. Two mice were anesthetized seventeen and eighteen times, respectively, with intervals of one or two days; some liver damage resulted. Kennedy found that toxic properties predominated when frogs were used.

Kennedy and Narayana⁵ found that the frog's heart brought to a standstill by perfusion with solution of Evipan Sodium recovered when perfused with unpoisoned solution. This is in harmony with the results observed by Storm,⁶ who perfused the heart of the monkey. He observed that the slow intravenous injection of 25 mg. per kilogram induced narcosis without excitement in the monkey (*Hylobates* and *Macaca irus*), with abolition of spinal reflexes. Any slight fall of blood pressure resulted from action on the vasomotor centers. Fatal doses caused death by paralysis of respiration before the heart stopped.

Wright⁷ stated that a dose of $\frac{1}{4}$ grain of Evipan Sodium per pound [35.6 mg. per kilogram] caused anesthesia lasting from ten to fifteen minutes in the dog, followed by a narcotic period [attended with incoordination] lasting from three to four hours. He states: "In every case in which it has been used, this period of recovery has been associated with frenzied struggling and excitement, and for this reason we have ceased to use it." Wright is a veterinarian and refers to its use for animals.

Holck and Cannon⁸ reported that delayed death in rats followed apparent recovery from depression induced by Nostal, but not that due to Evipan Sodium or any one of several other barbiturates.

Dallemagne⁹ reported that Evipan Sodium caused serious anemia in dogs, even when the dose was repeated at intervals of several weeks. Clinical reports of the use of repeated doses of the drug do not contain any mention of anemia, even when the dose was repeated twenty-nine times.¹⁰

Schranz¹¹ observed that patients with peritonitis and septic conditions required smaller doses of Evipan Sodium for anesthesia than did the average patient. He found that with the progress of infection and increasing weakness in experimentally infected animals the narcotic dose fell to one-fifth that required

3. Parsons, cited in report of the Anesthetics Committee Medical Research Council, *Lancet* 2:43 (July 1) 1933.

4. Kennedy, W. P.: *J. Pharmacol. & Exper. Therap.* 50:347, 1934.

5. Kennedy, W. P., and Narayana, B.: *Quart. J. Exper. Physiol.* 24:69, 1934.

6. Storm, C. J.: *Klin. Wchnschr.* 14:504, 1935.

7. Wright, J. G.: *Proc. Roy. Soc. Med.* 29:701 (sectional page 45), 1936.

8. Holck, H. G. O., and Cannon, P. R.: *J. Pharmacol. & Exper. Therap.* 57:128, 1936.

9. Dallemagne, M. J.: *Anesth. & Analg.* March-April, 1936, p. 82.

10. Bartlakowski, J.: *Zentralbl. f. Chir.* 61:2721, 1934.

11. Schranz: *Arch. f. klin. Chir.* 177:53, 1933.

1. Weese, H.: *Deutsche med. Wchnschr.* 58:1295, 1932.

2. Weese, H.: *Deutsche med. Wchnschr.* 59:47, 1933.

for healthy animals. Velu¹² reported that the injection of a dose of 33 mg. of Evipan Sodium per kilogram caused marked cyanosis in a horse which was severely ill with trypanosomiasis. Von Brandis¹³ found that with increasing depth of narcosis induced by Evipan Sodium or other anesthetic the analeptic effects of epinephrine, caffeine, strychnine, cardiazol, (mitrazol), coramine and strophanthin diminish and finally cease and that in deep narcosis these analeptics injure the circulation and respiration in the rabbit. He states that these results cannot be transferred directly to man. If it is valid to transfer the therapeutic ratio to man, it is difficult to explain why the results observed by von Brandis should not be equally applicable to man.

Fretwurst¹⁴ administered a total of 15 Gm. of Evipan orally to a dog in a period of ten days and recovered 5.6 per cent of the total barbituric acid in the urine, but he did not determine the form in which it was present. He stated that he and Halberkann had found from 1.2 to 4.5 per cent of single intravenous doses in the urine in man.

II. THE THERAPEUTIC USE OF EVIPAN AS A HYPNOTIC

The therapeutic use of Evipan as a hypnotic is of minor importance in the present discussion; hence it will be discussed briefly. Scharpf¹⁵ observed that it induces sleep promptly, and, since its action is brief, he concluded that it is useful for inducing sleep in those who lie awake without pain and for those who awaken early in the morning. He observed no ill effects from its use, with reference to the heart or vascular system, and no effects on the day following its administration. Weese¹ reported that the hypnotic and narcotic doses in animals lie close together, but it is obvious that the hypnotic dose for man when used in this way is far from the full anesthetic dose. Unfortunately the term "hypnotic" is also used to indicate the condition of mental confusion bordering on anesthesia in man. The hypnotic dose in that sense also lies near the narcotic, in fact it is the narcotic, in man.

III. NARCOSIS

The terms basal, basis and induction narcosis and "rausch" are used by different individuals with slightly different meanings, and several have defined these terms. Harms¹⁶ defines "rausch" as the stage between sleep and full narcosis, during which perception of pain is lost but during which the patient is able to answer questions intelligently. It is useful for slight operations, such as simple incisions, and for the removal of teeth. Evipan Soluble has been recommended by many for inducing various stages of anesthesia, and Kamniker and Rintelen¹⁷ stated that it had been generally accepted for "rausch" by those at the German Surgical Congress in 1933.

Baetzner¹⁸ reported that he had used Evipan Sodium in about 400 cases; that his investigation was incomplete, but that he had found it useful for "rausch," preliminary to ether or ethyl chloride, and alone for full anesthesia; that it is harmless and safe, with a complete absence of contraindications; that no special technic or experience regarding dosage is required—one merely follows the rules; that this requires no skill for its administration.

Holtermann¹⁹ used the drug in about 700 obstetric and gynecologic cases and was warm in his praises, recommending it for all short gynecologic operations, but not before delivery in labor, because of want of knowledge of its action on the child. Later Holtermann²⁰ became more conservative after he had used it about 1,800 times, during which he had a fatality. He then maintained that it could not be used with entire safety for full anesthesia.

Kobel²¹ stated that it is increasingly plain that Evipan Sodium is not suitable for long operations. Unfortunately, the conservative view which Kobel expressed so early in the history of the drug was not generally accepted at that time, and Kohlhaage²² maintained that it is useful in suitable cases for

prolonged operations. He opposed its use in obstetrics because of interference with uterine contractions. The difficulty lies in determining which cases are suitable. There is even today a want of agreement, and Coryllos and Bass²³ recommended its use in major operations. Oettle²⁴ probably expresses the opinion of the greater number of conservative observers when he holds that the drug finds its proper field limited to induction and short narcosis.

IV. DOSAGE

Evipan Soluble is sold in ampules each of which contains 1 Gm. of the drug, with an ampule which contains 10 cc. of sterile water. The aqueous solution decomposes in a short time; hence the drug is dissolved in the sterile water just before it is used. It is stated in the advertising and by many authors that this forms a 10 per cent solution and that 1 cc. contains 0.1 Gm. of the drug. The solution prepared according to the printed directions measures slightly more than 10 cc., and 1 cc. contains less than 0.1 Gm. The error is usually negligible, but it should not occur with such a potent drug. The solution made in this way is so generally used that the dosage is almost always expressed in cubic centimeters of this solution, and reference is made to it in the present discussion. Many authors stated in 1933 that they used the doses recommended by the manufacturers. The referee has not seen the earliest advertising of Evipan Sodium, but it is often implied that 10 cc. is the dose recommended. A circular received by a physician in 1935 bears the following statement:

"Simple Dosage Determination

"Estimation of the required dosage is not difficult. It is based essentially on the rapidity and intensity of the effect of the first fraction of the dose on the individual patient. As with other anesthetics, the general condition is also taken into consideration. Furthermore, the maximum of 0.06 cc. of the 10 per cent solution of Evipan Soluble for every pound of body weight is usually not exceeded at a single injection. The adult dose, therefore, ranges from 5 to 10 cc."

The circular contains no instructions regarding the rate of injection, nor does it mention any contraindications specifically. The foregoing statement is in harmony with that of Baetzner, who maintained that one "merely follows the rules," and also with that of Baumecker,²⁵ who stated that initial doses vary from 4 to 5 cc. in about one minute, the remainder more rapidly, the "exact dosage not being given and not necessary." He referred to the dosage recommended by the manufacturers and stated that they recommended a maximum of 10 cc. of the 10 per cent solution. Samuel²⁶ stated that with doses of from 4 to 5 cc. and repetitions of from 2 to 3 cc. one may secure painless childbirth.

Numerous reports of serious accidents and some fatalities following the use of Evipan Sodium soon led to efforts to devise a safe and effective method of administration. This involves two closely related questions. The first is the total dosage; the second is that of the rate of injection.

Baetzner²⁷ stated that it is wrong to follow any schematic dosage; that the hypnotic [light narcotic] dose for some patients is only from 0.5 to 1.0 cc., and that in one case a total of 1.5 cc. sufficed for anesthesia for an operation for hernia in a man of 75; that the elderly and the decrepit seldom require more than 4 cc., and that the use of even that dose often requires extreme care. Simenauer²⁸ reported tolerance [light anesthesia] induced by 0.5 cc. in a man in whom there was closure of the bile duct. Lauber²⁹ reported that sleep followed the injection of only 1 cc. in a man weighing 85 Kg. in whom a total of 3 cc. sufficed for anesthesia during an amputation. Honkamp³⁰ reported that some elderly patients bore doses of 10 cc. well, while some did not. Baetzner³¹ reviewed the subject and stated that much less is needed than was at first supposed; that the chief field is for induction and for short operations. The tone of this paper is in sharp contrast to that of his first.

It was maintained for a time that the drug must be injected fairly rapidly—the total within from two to three minutes—in order to secure a sufficiently high concentration in the blood

12. Velu, cited by Menegaux and Sechehaye.

13. von Brandis: Arch. f. klin. Chir. 177: 17, 1933.

14. Fretwurst: Med. Klin. 29: 893, 1933.

15. Scharpf, W.: Deutsche med. Wchnschr. 58: 1205, 1932.

16. Harms, J.: Ztschr. f. Chir. 241: 741, 1933.

17. Kamniker, K., and Rintelen, G.: Ztschr. f. Chir. 244: 571, 1935.

18. Baetzner, W.: Deutsche med. Wchnschr. 59: 48, 1933.

19. Holtermann, C.: Deutsche med. Wchnschr. 59: 50, 1933.

20. Holtermann, C.: München. med. Wchnschr. 80: 1547, 1933.

21. Kobel, E.: Deutsche med. Wchnschr. 59: 996, 1933.

22. Kohlhaage, T.: München. med. Wchnschr. 81: 110, 1934.

23. Coryllos, P. N., and Bass, Sara: Current Researches in Anesth. & Analg. 15: 66, 1936; Ann. Surg. 104: 46 (July) 1936.

24. Oettle, E.: Zentralbl. f. Chir. 63: 1104, 1936.

25. Baumecker, H.: Zentralbl. f. Chir. 60: 482, 1933.

26. Samuel, M.: Deutsche med. Wchnschr. 59: 286, 1933.

27. Baetzner, W.: Zentralbl. f. Chir. 61: 597, 1934.

28. Simenauer, quoted by Stimpfl.

29. Lauber, J.: Zentralbl. f. Chir. 60: 806, 1933.

30. Honkamp: Med. Klin. 29: 1085, 1933.

31. Baetzner, W.: Zentralbl. f. Chir. 62: 1600, 1935.

stream. Anschuetz³² stated that excitation in the first stage was due to overdosage or to a too slow rate of injection. Laesecke³³ held that injection at a slower rate than 1 cc. in fifteen seconds tends to induce resistance and failure to induce anesthesia.

Smaller doses and a slower rate of injection soon came into use among conservative surgeons, and Gautier³⁴ stated that slow injection is the main consideration and that rapid injection leads to inevitable disaster. He injected pantopon (the hydrochlorides of the alkaloids of opium, principally morphine) and after an hour the solution of Evipan Sodium was injected at the rate of 1 cc. in two minutes. When prolonged anesthesia was desired, Gautier injected from 0.5 to 1.0 cc. every five to ten minutes. There is still some diversity of opinion concerning the optimum rate of injection, but many conservative surgeons inject the solution slowly until twilight sleep is induced, and after an interval of about three minutes, during which the depth of anesthesia increases, additional amounts are injected slowly until the required stage of anesthesia is induced. Prolonged anesthesia is maintained preferably with ether. Some maintain that with the injection of fractional doses of 1 cc. or less the control of anesthesia is equal to that with ether.

The widely different views of equally competent observers may be harmonized in part with the knowledge gained by experience. Rapid injection is not desirable, but it is far less dangerous in young, healthy, strong patients than in elderly, feeble and seriously ill patients, who are peculiarly susceptible to the toxic effects of the drug. Rapid injection is courting disaster with such patients. The question of dosage and the rate of injections are closely connected with those of indications and contraindications, and they cannot be considered wholly independently.

The functional activity of the liver in any patient influences the safety of a given dose of Evipal Soluble, but the anesthetic activity and the toxicity are increased by a great variety of conditions, which must be considered when determining the availability of the anesthetic and in calculating the dosage. Healthy children and strong, healthy, young adults require relatively large doses, and "failures" are more common among such patients than among the elderly. Severe sepsis, ileus, peritonitis, cachexia, emaciation, severe hemorrhage, and anything that tends to lower the resistance of the circulatory and respiratory systems are all indications for the greatest caution with regard to the total dose and to the rate of injection. It is not difficult, therefore, to understand why some patients have been poisoned severely by as little as 2 cc. of the solution, while others have borne total amounts of 50 cc. during prolonged anesthesia, with no obvious injury.

Many use morphine as a routine before general anesthesia without recording the fact, and it is often impossible to know whether it was used in a given case. One is often practically certain that morphine was used in cases in which the effects following the use of very small doses of Evipal Soluble in nearly normal patients greatly exceed those which are to be expected from such doses of the anesthetic alone. Geiger³⁵ reported that he injected 1 cc. of morphine [sic] followed by 25 cc. of Evipan Sodium during an operation lasting three hours on a man of 70 years with excellent results. That suggests either extraordinary good fortune or an extraordinary patient.

The manufacturer does not recommend the use of morphine, but its use permits the utilization of smaller doses of the anesthetic with smoother anesthesia and fewer "failures." The smaller doses of the anesthetic are attended with less frequent tremor and convulsive movements, which often interfere with operation. It is well known that Evipal Soluble and morphine are both depressants of the respiratory center, and there can hardly be a serious question that toxic doses act synergistically to depress the respiration. With wisely selected therapeutic doses of each, the synergistic action on the respiration is often less than that of the total dose of Evipal Soluble which would be required alone to induce the same degree of anesthesia. The Council's referee believes that small doses of morphine—seldom more than 10 mg.—are often desirable; but there is no justifica-

tion for using larger doses of morphine in the form of omnopon or pantopon than would be used in the form of the official morphine sulfate.

One may say that the dose of Evipal Soluble solution varies from 0.5 to 10 cc. for short operations or for induction anesthesia, dependent on many conditions, not all of which can be known in advance. The Council's referee does not believe that larger doses or repetitions of fractional doses should be used for prolonged anesthesia. Stohr³⁶ stated that he had discussed the question of dosage with many surgeons and that it becomes increasingly evident that there is hardly another drug which requires such individualization for safety.

V. ANTIDOTES

Evipal Soluble has the actions of other barbiturates, differing mainly in its rapid decomposition in the liver. Any substance which counteracts the effects of other barbiturates and which acts promptly and without harm to the patient may be useful in treating poisoning with Evipal Soluble; but severe or fatal accidents sometimes follow the injection with such suddenness that little can be done to counteract the toxic effects. One is impressed with the frequency with which observers have reported that they had used lobeline, caffeine, strychnine, coramine, metrazol (cardiazol), epinephrine or oxygen with carbon dioxide and artificial respiration without success. Recent work suggests that picrotoxin may be valuable when we have accurate knowledge of the proper technic for its use under a variety of conditions. It is a very active agent, and capable of causing death when excessive doses are used.

The observation of von Brandis³⁷ that with increasing depth of anesthesia the analeptic action of several of the drugs commonly employed as antidotes to the barbiturates lessens and may even increase the depression in normal animals in deep narcosis helps to explain why these often failed to restore patients who had suffered collapse after the injection of Evipal Soluble.

Lundy³⁷ states that the safe intravenous injection of Evipal Soluble or other barbiturates induces anesthesia so slowly that surgeons complain of the delay; he suggested the addition of 25 mg. of the cardiac and respiratory stimulant pyridine beta-carbonic acid diethylamide to every cubic centimeter of the solution of the barbiturate. This procedure does not impress the referee favorably. Should severe respiratory depression result from overdosage with this method, it would seem to leave no satisfactory resource available.

VI. ADVANTAGES

Some of the advantages of Evipal Soluble can be stated only in general terms, because what constitutes an advantage in one case may be of slight importance in another. A patient's fear and anxiety increase the danger of a severe operation, and the avoidance of psychic disturbance is probably the greatest advantage possessed by Evipal Soluble anesthesia. With the injection of the solution the patient usually experiences nothing more than the prick of the needle before becoming drowsy and losing consciousness almost immediately. When the dose is calculated with skill and the drug is injected slowly in suitable cases, the depth of anesthesia is usually under control nearly equal to that with ether—better, according to a few enthusiasts.

Vomiting occurs less frequently than after ether. It is probable that it occurs after Evipal Soluble alone in about 1 per cent of the cases, but the conflicting testimony is hard to reconcile. Coryllos and Bass,²³ who used preliminary doses of one-third grain of pantopon, reported vomiting in 24.7 per cent of their cases in operations for thoracoplasty. Greenberger and Bass³⁸ reported that 6 per cent of their patients vomited after urologic operations. Several report that none of their patients vomited after the injection of Evipan Sodium alone, and Decker³⁹ stated that none of 112 patients vomited. He used morphine in doses of 20 mg. half an hour before the operation.

Evipal Soluble does not irritate the respiratory passages. This is an especial advantage for patients having bronchial or pulmonary inflammation, and pneumonia occurs less frequently after its use than after ether. Decker also reported that no

32. Anschuetz, W.: *Zentralbl. f. Chir.* 60: 1361, 1933.

33. Laesecke, M.: *Zentralbl. f. Chir.* 60: 1042, 1933.

34. Gautier, J.: *Bull. et résum. Soc. nat. d. chir.* 60: 1140, 1934.

35. Geiger: *Zentralbl. f. Chir.* 62: 2243, 1935.

36. Stohr, R.: *Wien. klin. Wchnschr.* 48: 1618, 1935.

37. Lundy, J. S.: *Proc. Staff Meet., Mayo Clin.* 10: 791, 1935.

38. Greenberger, M. E., and Bass, Sara: *Urol. & Cutan. Rev.* 39: 553, 1935.

39. Decker, R.: *München. med. Wchnschr.* 81: 395, 1934.

case of pneumonia occurred in his series of 112 operations, mainly laparotomies. The anesthetic does not appear to injure the healthy vital organs. The absence of a mask is important in operations about the head.

VII. DISADVANTAGES

Little is said in the advertising about the disadvantages of Evipal Soluble; but many of these are apparent from the present discussion. First in importance, and far outweighing all others, are the uncertainty of the proper dosage in many cases, and the uncertainty regarding the relative contraindications, because so many conditions must be considered and each given its due weight when calculating the dosage.

Evipal Soluble depresses the respiration and the circulation; often sharply, sometimes fatally. Lauber²⁹ states that the fall of blood pressure is greater in patients with arteriosclerosis than in normal persons. It is probable that this explains some of the deaths that have been reported in elderly patients. The fine or coarse tremor (less frequent after morphine), the incomplete relaxation of the abdominal muscles, especially in the presence of reflexes, the necessity of a skilled anesthetist, and the undue prolongation of narcosis even after small doses in some cases are among the disadvantages, some of which have been enumerated previously in this discussion.

Landor and Salleh⁴⁰ reported a case of widespread paralysis which followed the use of Evipal Sodium. There is no evidence that the anesthetic caused the paralysis. Peterkin⁴¹ reported dermatitis in an anesthetist. Belfrage⁴² stated that during the previous year a few cases, three or four he believed, had been described in which Evipal had been followed by severe disturbance of the blood, taking the form of myelogenous leukemia.

VIII. INDICATIONS AND CONTRAINDICATIONS

There is a want of agreement concerning the indications and contraindications for the use of Evipal Soluble. The Anesthetics Committee of the Medical Research Council³ stated that thorough pharmacologic work had been carried out in Germany with Evipal. The individual experiments may have been thorough, but the published results were of limited scope and left much to be learned at the expense of patients. Sauerbruch⁴³ stated that the manufacturers should have made exhaustive studies of the drug before marketing it. This statement was based on the fact that many accidents to patients had occurred. Domanig⁴⁴ expressed agreement with Sauerbruch. Domanig presented an excellent discussion, but much has been learned by clinical experience since his paper appeared.

Evipal Soluble finds its special field of usefulness in the hands of those who are skilled in its use, for light anesthesia or the "rausch" of German anesthetists, which is suitable for short operations, such as simple incisions, changing painful dressings and the removing of teeth; and also for inducing anesthesia which is to be continued with ether or some other volatile anesthetic, provided the patients are in good general condition and are free from disturbance of the circulatory or respiratory system.

One who has had an unfortunate experience with a new anesthetic is inclined to consider certain conditions of the patient in whom the accident occurs as contraindications for that anesthetic. The result is that there are many contraindications reported which do not find general acceptance. Many hold that there is no absolute contraindication but that there are relative contraindications which vary in degree from the almost negligible to nearly absolute. One finds it warmly recommended for conditions that others hold to constitute absolute contraindications.

The consensus of those whose opinions have impressed the Council's referee is that the relative contraindications include liver disease or liver dysfunction, severe septic conditions, ileus, peritonitis, extensive hemorrhage, anemia, emaciation, general weakness, cachexia, phlegmon of the throat, extensive arteriosclerosis, and depressed state of the circulatory or respiratory system. No hard and fast rule can be stated, and skill and experience are required in many cases to determine whether

a given condition, or combination of conditions, constitutes an absolute bar to the use of the drug.

Any relative contraindications must be taken into consideration when calculating the dosage, and with that understanding the drug may be indicated when its advantages outweigh its disadvantages.

IX. SEVERE, BUT NOT FATAL, ACCIDENTS

Weese⁴⁵ stressed the "extraordinary therapeutic ratio of Evipal Sodium, because it has a strikingly slight action on the respiratory and vasomotor center." He had previously stated that there had not been one dangerous occurrence among 10,000 cases of Evipal Sodium narcosis but that there had been one unexplained death. That death was "unexplained" merely because adequate studies of the actions of Evipal Sodium had not been made under widely varying conditions. It was an Evipal Sodium death (reported by Petermann).

Ansuetz³² reported at the German Surgical Congress in April 1933 seven severe accidents that had followed the use of Evipal Sodium. There was severe circulatory failure in five and moderate failure in one. Three of the patients died within thirty-six hours. The Council's referee believes that the drug was partly responsible for one of these deaths and has included it in a list to be given presently.

Stimpfl⁴⁶ collected twelve additional reports of severe accidents involving disturbance of the respiration or circulation or both. He attributed these accidents to overdosage and held that they were avoidable. Toxic actions are evidence of overdosage, but it is precisely because overdosage is so difficult to avoid with surely effective doses that accidents continue to occur.

Ménégaux and Sechehaye⁴⁷ reviewed the literature embracing about 200 papers dealing with Evipal Sodium. They tabulated forty-nine severe accidents, giving the name of the author, the sex, age and weight of the patient, a brief history, the dose (often unknown), the rate of injection, the interval before the onset of the accident, its character, antidotes employed, and the result of the treatment. Five of these patients died, four of them within thirty-six hours; but those authors do not attribute any of these five deaths to the anesthetic. One of the severe accidents occurred after an interval of three days; the referee does not believe that it should have been included in the list, since he does not find any evidence that it was caused by Evipal Sodium.

The onset of the accident was immediate or within five minutes in eighteen cases; in nearly all the others the time of onset is not recorded. In nearly every case there was asphyxia, cyanosis or collapse. Many others have reported severe accidents, and among these Coryllos and Bass²³ as late as 1936. The study of severe accidents throws much light on the cause of death in other cases, and, while the subject is obviously of great importance, a comprehensive discussion of these reports would require more space than can be devoted to it here.

X. DEATHS

Ansuetz³² also reported eight deaths following the use of Evipal Sodium at the same time that he reported the seven severe accidents. These were reported by those who had used Evipal Sodium in 6,460 operations. Several subsequent writers have stated that these eight deaths occurred in the first 6,460 cases in which the drug was used. This is not the case; there had been about 25,000 anesthetics with it apparently, and many reported that there had been no accident.

Ansuetz stated that these deaths were due to relative overdosage but that one reported by Petermann was serious; meaning, presumably, that it was not predictable. Some subsequent writers have concluded that all these eight deaths were due to the anesthetic; others have attributed only one or two of them to the drug.

Stimpfl⁴⁶ listed eleven deaths, including those reported by Ansuetz, one reported by Gritti, one by Killian and one that "occurred in a small hospital."

There was paralysis of respiration in 34 per cent and severe depression or paralysis of the heart or circulation in 38 per

40. Landor, J. V., and Salleh, Mohamed: *Brit. M. J.* 2:940 (Nov. 24) 1934.

41. Peterkin, G. A. G.: *Brit. M. J.* 1:456 (March 10) 1934.

42. Belfrage, D.: *Proc. Roy. Soc. Med.* 29:709, 1936.

43. Sauerbruch: *Zentralbl. f. Chir.* 62:600, 1935.

44. Domanig, E.: *Wien. klin. Wchnschr.* 48:1245, 1935.

45. Weese, H.: *Klin. Wchnschr.* 12:1309, 1933.

46. Stimpfl, A.: *München. med. Wchnschr.* 80:1429, 1933.

47. Ménégaux, G., and Sechehaye, L.: *J. de chir.* 41:363 (Sept.) 1934.

cent of the total of twenty-nine cases—nineteen accidents and ten deaths—with details lacking in the case reported by Gritti. The high percentage of circulatory disturbances is of special importance, because it shows that the statement of Weese that fatal doses always cause death by paralysis of respiration is dangerously misleading. This statement is also made in the literature issued by the manufacturers in such a way as to imply that it is true in clinical cases.

Ménégaux and Secheyaye⁴⁷ tabulated twenty-two deaths that had occurred during or following anesthesia with Evipan Sodium in about 23,000 cases. They state that Jacobson reported another death after the table had been prepared. It is not included in the present discussion because the data do not indicate the cause of death sufficiently. These twenty-two deaths embrace all that Anschuetz had reported and all—with possibly one exception, that reported by "a small hospital"—which Stimpfl listed. These twenty-two deaths are listed here with the numbers used by Ménégaux and Secheyaye, with references to original reports when possible, in order to facilitate the present discussion and for the convenience of the reader in consulting original reports.

Deaths listed by Ménégaux and Secheyaye:

1. Moulouquet: *Presse méd.* **42**: 337.
2. Boden: *Fortschr. d. therap.*, 1933, No. 12, p. 718.
3. Ohse: *Zentralbl. f. Chir.* **60**: 2380, 1933.
4. Sicard: *Bull. et méd. Soc. nat. de la chir.* **60**: 573, 1934.
5. Stimpfl, A.: *München. med. Wchnschr.* **80**: 1429, 1933.
6. Hogenauer: *Zentralbl. f. Chir.* **61**: 517, 1934.
7. Reschke: *Zentralbl. f. Chir.* **62**: 1703, 1935.
8. Gritti (no reference given).
9. Hammermann: Thesis; not available to referee.
10. Moerl: *Zentralbl. f. Chir.* **60**: 877, 1933.
11. Schmitt (reported by Schmutzler): *Klin. Wchnschr.* **12**: 1309, 1933.
12. Schmitt (reported by Schmutzler): *Klin. Wchnschr.* **12**: 1309, 1933.
13. Petermann: *Zentralbl. f. Chir.* **62**: 600, 1935.
14. Döderlein: *Zentralbl. f. Chir.* **62**: 598, 1935.
15. Ménégaux and Secheyaye: *J. de chir.* **44**: 363, 1934.
16. Hoevelborn: *Klin. Wchnschr.* **13**: 372, 1934.
17. Killian: *Arch. f. klin. Chir.* **177**: 53, 1933.
18. Holtermann: *München. med. Wchnschr.* **80**: 1547, 1933.
19. Nordmann: *Zentralbl. f. Chir.* **62**: 598, 1935.
20. Duboucher, Megnin and Sarlin: *Bull. et mém. Soc. de chir.* **60**: 572, 1934.
21. Harms: *München. med. Wchnschr.*, 1934, p. 847.
22. Boit: *Deutsche med. Wchnschr.* **59**: 983, 1933.

It is to be observed that some of the references given here apply to papers published subsequent to that of Ménégaux and Secheyaye.

Ménégaux and Secheyaye eliminate three of these deaths (6, 15 and 9) as certainly due to disease; they state that the cause of death in two cases (8 and 19) is unknown. However, one of these (Nordmann's) is of especial interest because Anschuetz said of this "Do not blame Evipan too much." Nordmann informed Stimpfl that the patient, a man of 86, suffering with gangrene, received a dose of 8 cc. and died from heart failure due to the anesthetic. Four of the deaths (13, 16, 18 and 20) are listed as "probably due to Evipan Sodium" but with serious reservations in three. In five cases (3, 4, 11, 12 and 21) the anesthetic is stated to have been absolutely contraindicated and in nine (1, 2, 5, 6, 7, 10, 12, 14 and 17) it was relatively contraindicated. There was overdosage in eight. They state that it is possible that twelve deaths (3, 5, 6, 7, 10, 11, 12, 13, 14, 17, 18 and 19) were due wholly or partly to Evipan Sodium.

The onset of the accident—not the time of actual death—was "immediate" in seven cases (1, 2, 6, 18, 20, 21 and 22), within one-half to fifteen minutes in six (3, 4, 10, 12, 14 and 17) and "shortly," "at end of operation," or "in some minutes" in three cases (5, 7 and 13).

It would be a remarkable coincidence if there were no immediate connection between cases of overdosage and contraindications and the deaths that followed. There would be no object in mentioning a death under the circumstances if there were no connection between the anesthetic and the cause of death; nevertheless, many of the authors, including Ménégaux and Secheyaye, deny that the deaths which they report were caused by the anesthetic. It is practically certain that some of these deaths would be avoidable in the light of our present knowledge. It is probable that some of these patients would have died with any anesthetic and that some would have died shortly without any anesthetic or operation; but the present analysis

is intended to direct attention to ways of avoiding accidents, not to accuse any individual anesthetist of carelessness.

Stohr and Niederland⁴⁸ tabulated fifteen deaths which they considered as certainly, or almost certainly, due to Evipan Sodium. These include twelve of those reported by Ménégaux and Secheyaye and three reported by Steinbrück. Desplas⁴⁹ attributed twenty-three deaths to Evipan Sodium, with the cause of another in doubt. His list includes three duplications, the record of one which was apparently only a minor accident, not a death, and one of which the referee finds no other record (Bassler's). Two deaths reported by Schmidt and included in the list of Ménégaux and Secheyaye were also reported by Schmutzler.⁵⁰

The referee has collected reports in the literature of twenty-one deaths in addition to the twenty-two reported by Ménégaux and Secheyaye and has analyzed independently the original reports of all but three of the twenty-two included in the list of those authors. The reports of these twenty-one deaths will be reviewed briefly. The dates of the reports are given in the text because it is of interest to consider the list historically. It is certain that some deaths which occurred early in the use of Evipan Sodium were attributed to other causes or to causes unknown, because it was supposed that the anesthetic was free from danger. (Cf. comments on death reported by Petermann). Unfortunately, the date of published reports does not always coincide with the date of the accident.

1. Baucks⁵¹ (1933) reported that a patient with peritonitis, appendicitis and intestinal paralysis collapsed after the injection of 3 cc. of Evipan Sodium; the pulse was imperceptible; the intended operation was not performed; there was slow improvement; death resulted from peritonitis after twenty-four hours. The referee believes that this was a most unfavorable case for the use of Evipan Soluble and that the anesthetic was a contributory cause of death. Baucks also reported that a man of 66 suffered severe collapse after the injection of 2 cc. of Evipan Sodium but recovered; the patient died of intestinal paralysis after an interval of thirty-six hours. It is impossible to state whether the anesthetic hastened the death.

2. Zantop⁵² (1933) reported that the injection of 4 cc. of Evipan Sodium caused sleep lasting three hours in a patient suffering with meningitis. Weakness of the heart and respiration necessitated the use of restoratives; death occurred after an interval of thirty-six hours. The anesthetic probably contributed to the cause of death, which would have occurred shortly had no anesthetic been used.

3. Ducuing and Fabre⁵³ (1934) attributed a death with one of their first eight cases to Evipan Sodium and add "Naturally, we dropped it." The referee accepts their opinion without having had an opportunity to analyze the procedure.

4 and 5. Monod⁵⁴ (1934) reported two deaths following the use of Evipan Sodium. He stated that these deaths were not due to the anesthetic, but Desplas, who heard the report, maintained that the drug caused the deaths. Both patients were poor risks, one with pulmonary abscess complicated by meningitis; the other had cirrhosis of the liver. The referee believes that the anesthetic was at least partly responsible for the immediate deaths but that both patients would have died had it not been given. That may be the basis of Monod's contention that the drug was not to blame. One may be permitted to ask why Monod reported them if the drug was not at least partly responsible for the deaths.

6. Napier and Petrie⁵⁵ (1934) reported that a man in a very toxic state died with cardiac collapse though "usual precautions were taken." The intended operation was not performed, and this was apparently a case in which the anesthetic caused death; but details are lacking.

7-13. Slot and Galley⁵⁶ (1934) reported nine deaths of which they had secured reports. These include one of their own

48. Stohr, R., and Niederland, W.: *Wien. klin. Wchnschr.* **48**: 993, 1935.

49. Desplas, B.: *Bull. et mém. Soc. nat. d. chir.* **60**: 1129, 1934.

50. Schmutzler: *Klin. Wchnschr.* **12**: 1309, 1933.

51. Baucks, K.: *Zentralbl. f. Chir.* **60**: 306, 1933.

52. Zantop, H.: *Med. Klin.* **29**: 782, 1933.

53. Ducuing, J., and Fabre, P.-Ch.: *Bull. et mém. Soc. nat. d. chir.* **60**: 1128, 1934.

54. Monod, R.: *Bull. et mém. Soc. nat. d. chir.* **60**: 318, 1934.

55. Napier, R., and Petrie, P. W. R.: *Brit. M. J.* **2**: 534, 1934.

56. Slot, G., and Galley, A. H.: *Brit. M. J.* **2**: 291, 1934.

patients, one reported by Westminster Hospital and five others for "some of which they are indebted to Dr. Morrison." It would appear that this Dr. Morrison was the medical representative of the manufacturers, but such is not stated by the authors. The referee believes that two of the nine deaths may be dismissed as being due to other causes. No. 7 of the present series (the first of these authors) was a patient of the authors. A man of 70 was toxic and suffered from chronic bronchitis, fatty myocarditis, cloudy swelling of the heart and kidney, carcinoma of the tongue, edema and congestion of the lung. He received $\frac{1}{3}$ grain of omnopon and $\frac{1}{150}$ grain of scopolamine followed after an hour by the injection of 8.5 cc. of Evipan Sodium. Comment is superfluous except to state that the patient survived for sixteen hours. It is an astonishing record for the date.

8. (Reported to Slot and Galley by Westminster Hospital.) Death was almost immediate in an extremely unfavorable case after the injection of 3 cc. The necropsy revealed "a piece of tartar as large as a tooth" lodged in the glottis. It was suggested that it caused death. The referee has studied this report and has concluded that the patient probably died of Evipal Soluble, but certainty is impossible.

9. A man of 67 with renal cardiac diseases and bronchitis received an injection of 7 cc. and died under the anesthetic.

10. A woman of 27 received an injection of 10 cc. of Evipan Sodium for an appendectomy and died during the operation. Such a dose is contraindicated in appendicitis, and the referee believes that it caused the death of the patient.

11. A man of 64 had chronic myocarditis, circulatory failure, edema, hydrothorax and a severe toxic oral state; he received an injection of 10 cc. and died "shortly." This is an excessive dose for a man in such a condition, and the cause of death seems obvious.

12. A woman of 50 with advanced cardiac disease and oral sepsis received an injection of Evipan Sodium and died from respiratory and cardiac failure.

13. A woman of 60 with severe rheumatoid arthritis and septic teeth, with extensive myocardial degeneration (shown at necropsy) received an injection of 6 cc. of Evipan Sodium and died at the end of the operation.

14-17. Steinbrück⁵⁷ (1934) reported two deaths and subsequently reported two more. Three of the four are included in the list of fifteen deaths of which reports were collected by Stohr and Niederland. The first of these four (in the referee's list) was that of a woman of 48 whose general condition was poor, in whom there was a diagnosis of phlegmon of the mouth and throat with beginning edema of the glottis. The slow injection of 3 cc. and then of 1 cc. was followed by a sudden change for the worse, cyanosis, superficial respiration, and failure of the pulse. Necropsy revealed also a septic spleen, dilated heart and diseased liver. A less favorable case would be hard to find.

A man of 84 suffering with cancer of the breast received an injection of 7 cc. During a rapid operation, the heart and respiration failed. Restoratives were applied and the patient improved, but he died the next morning. Necropsy showed cancer of the stomach and fatty infiltration of the liver with some pulmonary edema.

A strong, muscular man of 27 suffering with syphilis received an injection of Evipan Sodium for anesthesia for a plastic operation on the palate. There was a pause with the onset of sleep, because of movements, and then a total of 24 cc. (including the first portion) was injected during an operation lasting forty-five minutes. Severe asphyxia was followed in the afternoon by death. Steinbrück states that this dose seemed justifiable on the basis of previous reports. All these four deaths occurred in 1933, but this report was made in 1934.

A man of 70 received an injection of 13 cc. of Evipan Sodium for an operation for hernia lasting thirty-five minutes. Cyanosis developed while the circulation remained good, but all efforts at restoration failed. After these deaths Steinbrück stated that they used Evipan Sodium only for short operations, for which they used from 2 to 4 cc. to induce sleep and followed this with ether. It is obvious that Steinbrück attributes these deaths to the anesthetic.

18. Barnsley⁵⁸ (1934) "was moved by the report of Slot and Galley, and because the mortality from Evipan assumes alarming proportions" to report the following death. A man of 70, suffering from dysphagia, was admitted for esophagoscopy; he was frail and cachectic. After the injection of 5 cc. the pulse became thready at once and finally stopped. Necropsy showed that "the stomach was solid with carcinoma." The anesthetic was the immediate cause of death, though the patient would have died shortly without it.

19. Nordentoft⁵⁹ (1935) reported that a woman of 64 suffering with cardiac dilatation died about three minutes after the injection of 7 cc. of Evipan Sodium, with respiratory and cardiac failure. Carcinoma of the uterus had been suspected, and the woman, almost paralyzed by fear, had insisted that she would die, even though assured that only a minor operation was to be performed. The nervous condition indicated the use of Evipal Soluble, but the patient was an extremely poor risk for other reasons.

20. Kamniker and Rintelen⁶⁰ (1935) reported the death of a man of 70 and that of a woman of the same age. The man died after an interval of three days. The referee does not include this death in the list of twenty-one which is given here. The woman was severely cachectic; she received an injection of 7 cc. of Evipan Sodium, which was followed after five minutes by failure of the heart and respiration. It seems probable that both patients received morphine, though it is not mentioned in the report. It was used in other cases, and its use seems to have constituted a routine procedure.

21. Greenberger and Bass³⁸ (1935) reported three deaths following the use of Evipal Soluble in fifty-two procedures. One patient was severely toxic with perineal abscess and severe infection and had a damaged heart. He received an injection of 10 cc. of Evipal Soluble and died within about four minutes from respiratory and cardiac failure. The dose was excessive under the circumstances, and the cause of death seems obvious. Muscular movement induced by the anesthetic contributed to injury of the bladder in one case and thereby probably contributed indirectly to the cause of death in one of the three patients. The third death was apparently due to other causes and does not require further consideration here.

It is obvious that, so long as reports are made without the name of the surgeon or anesthetist in charge, one cannot be absolutely certain that one has avoided duplication in every case. The referee has tried to avoid such duplication, and, on the other hand, he may have omitted some deaths, such as that "reported by a small hospital."

SUMMARY AND CONCLUSIONS

Evipal Soluble (Evipan Sodium) was introduced as a general anesthetic to be injected intravenously before adequate studies had been made of it under a great variety of conditions.

Evipal Soluble probably has a narrow field of usefulness in which it may be employed with relative safety provided it is used with skill and with due regard for its limitations. The contraindications—both relative and absolute—are numerous, but they have not been determined with sufficient precision to permit of the use of the substance with absolute safety in many conditions.

Reports of severe and fatal accidents have been discussed. The referee has examined the readily available data concerning a number of deaths which have followed the use of Evipal Soluble (Evipan Sodium). It is believed that the anesthetic is wholly or partly responsible for forty-three deaths listed in this report, though several of these deaths would have occurred shortly with any anesthetic, and in the absence of any.

It is probable that the preliminary use of morphine contributed to the cause of death in some of these cases. The failure of some operators to report the use of morphine increases the difficulty of analysis of the cause of death. While morphine may have contributed to the cause of death in some cases, as stated, it is equally possible that it lessened the danger in others.

58. Barnsley, A.: *Brit. M. J.* 2: 329, 1934.

59. Nordentoft, J.: *Zentralbl. f. Chir.* 62: 2413, 1935.

60. Kamniker, K., and Rintelen, G.: *Deutsche Ztschr. f. Chir.* 241: 571, 1935.

57. Steinbrück: *Zentralbl. f. Chir.* 62: 595, 600, 1935.

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SATURDAY, APRIL 3, 1937

SPRAY RESIDUE ON FOODS

In order to minimize the possibility of poisoning from foods contaminated by lead or other metallic spray residues, the federal government has established maximum values for the amounts of these metals that may be present in sprayed fruits intended for interstate commerce. The Council on Foods of the American Medical Association has voted that no food shall use the seal of acceptance if it contains more than two parts of lead per million of food. Tolerances for arsenic and copper also have been adopted. Laws to protect consumers of fruits and vegetables distributed in intrastate commerce exist in only two states, Colorado and Michigan. A recent report¹ emphasizes the urgent need for state laws of this type. Analyses were made on various lots of apples of different varieties intended for local distribution in Iowa, a state without spray residue regulations. Lead was determined by the diphenylthiocarbazone procedure as an index to the amount of spray residue present. Although most of the samples contained amounts of lead within the 1935 federal tolerance of 0.018 grain per pound (equivalent to 2.5 parts per million) five lots showed larger amounts, ranging from 0.024 to 0.027 grain per pound.

Studies were also made to detect possible toxic effects of the sprayed apples. Both normal human subjects, who ate two apples daily from fall until early spring, and guinea-pigs fed apples from the same source were used. Blood smears were made at regular intervals and treated with a modified Mason's methylene blue stain, a stain said to give the most consistent results in the detection of the effects of lead as revealed by the blood picture.² The smears from both the human subjects and the guinea-pigs gave no indication of increased amounts of basophilic materials over that present in normal controls, thus indicating that the small amounts of lead ingested under the conditions of the experiment exerted no detectable toxic effects. One case was

reported, however, of a person who ate three apples from a sprayed orchard and developed symptoms of arsenic poisoning shortly thereafter. The apples, he noted, were coated with a whitish substance, which he partially removed with a handkerchief. A severe diarrhea developed on the following day and continued for a second day. Subsequently a marked anal itching developed, followed by an urticarial type of dermatitis, which spread rapidly over the entire buttocks. Twenty-four days after the patient had eaten the apples, and shortly after he was admitted to a hospital, an itching maculopapular rash appeared in the lumbar region and soon spread over the entire trunk and extremities. The rash disappeared in a few days and the patient made an uneventful recovery. Arsenic was found in the patient's urine following admission to the hospital and the case was diagnosed as arsenic poisoning from the spray residue on the apples.

Even though no definite evidence of toxicity was observed in the subjects who ate sprayed apples as described, the fact that one case of arsenic poisoning from sprayed fruit was observed and the lead content of some lots of apples exceeded the federal tolerance warrant the author's recommendation that applegrowing states should enact laws to protect consumers against spray residues on fruits and vegetables. The use of the 1 per cent hydrochloric acid rinse procedure outlined by the United States Department of Agriculture³ is suggested as a simple and reliable procedure, which would at least mitigate a potential danger.

SYPHILIS IN THE MAGAZINES

The tabu against discussions of syphilis in newspapers and popular magazines is no more. A few diehards among the editors continue to avoid the subject, but general recognition of its importance is spreading rapidly. Much credit attaches therefore to the *Chicago Tribune*, which apparently saw the trend of public thought in time to open up the subject before other newspapers or magazines ventured the chance of public disapproval by seriously discussing this problem.

In the March and April issues of the *Reader's Digest* (edited by DeWitt Wallace and Lila Bell Acheson) articles have been published by Drs. John H. Stokes and Thomas Parran which are models for this type of discussion going to the public. There is no exploitation of the writer; there is excellent presentation of the subject; there is proper consideration of the public health and private practice aspects of the subject. Surgeon General Parran points out that free drugs and reliable laboratory service made available to private physicians would permit many marginal patients able to pay only small amounts for treatment to be served by a personal physician instead of being shifted to the impersonal public clinic. In a recent address he empha-

1. Heeren, R. H., and Funk, H. B.: Toxicity of Fruit Sprays, Pub. Health Rep. 52:8 (Jan.) 1937.
2. McCord, C. P.; Holden, F. R., and Johnston, Jan.: Basophilic Aggregation Test in the Lead Poisoning Epidemic of 1934-35, Am. J. Pub. Health 25:1089 (Oct.) 1935.

3. Farmer's Bulletin 1752, U. S. Department of Agriculture, August 1935.

sized also the danger of having public demand for medical service created beyond the ability of either the medical profession or the public to supply that service.

Another periodical that has contributed notably in recent articles to the proper exploitation and advancement of medical service is the *Redbook* (under the editorship of Edwin Balmer). An earlier article by Morris Markey, a reporter of considerable repute, revealed to the public the questions at issue with relationship to the problem of state medicine. In the April issue of the *Redbook* he discusses the present status of the syphilis problem. Mr. Markey provides not only a brief history of the advancement of our knowledge of this disease but also explicit directions for the public as to what to do when confronted with the possibility of a case in the reader's own family. It is doubtful whether any better advice has been given by anybody than appears in the following concluding three paragraphs of his article:

The rule becomes simple. Take every possible precaution against infection. If you think you might have been exposed to infection, through a kiss or any other contact, take the easy precaution of soap and water. If any symptoms at all appear, don't groan in secret and horrified misery. Get to a doctor. The blood test is a simple and painless affair, requiring about two minutes of your time. It will tell you whether to go on home and forget your anxieties, or whether to tell your doctor that the quicker he begins his treatments, the quicker you will be over with the thing—perfectly normal again, healthy, able to marry and have children with no fear of the consequences.

The blood test is not expensive. You can get one for a dollar or two, or you can get it free by going to a clinic, if you can't possibly afford to pay your doctor. You can get treatment free, too, if you can't afford to pay your doctor.

If you do not know a doctor, or how to find the clinic, call up your county medical association—the number will be in the phone book—or call up your local public health director. Whatever you do, place yourself immediately in the hands of a medical man. Do, literally, everything he tells you to do, for it is by his help, and his alone, that you will get well—and that you will avoid passing the disease on to some other poor victim.

In the *American Mercury* there is a flippant but at the same time somewhat perspicacious article by Anthony M. Turano pointing out many of the inconsistencies in our attitudes on this subject. It is very easy to be sarcastic now but it is doubtful that much is to be gained by pummeling a dead body. The prudery in regard to syphilis has just about vanished and the great danger now, as said in *THE JOURNAL* some weeks ago, is overemphasis. Certainly it would be too much to hope that all state legislatures would immediately pass adequate laws in relationship to the control of venereal diseases. Legislatures seem either to be twenty years ahead of what medicine can prove or twenty years behind what it already has proved.

Attention should also be called to the manner in which *Time*, *News Week*, *Literary Digest* and *Collier's* have considered this subject. Apparently our editors have merely been waiting for the opportunity to join in this campaign and now that the ground has been broken, we may expect a reasonable amount of discussion in all periodicals devoted to current interests.

CONTRACEPTIVE ADVICE, DEVICES AND PREPARATIONS STILL CONTRABAND

The United States circuit court of appeals for the second circuit, Dec. 7, 1936, affirmed a decree of the United States district court for the southern district of New York dismissing an action brought by the United States for the forfeiture of a package offered for importation, containing certain articles to prevent conception; namely, 120 pessaries more or less.¹ These pessaries, it appears, were sent by a physician in Japan to a physician in the United States, for trial in her practice and an expression of her opinion as to their usefulness for contraceptive purposes. The tariff act of 1930,² which prohibits the importation of articles for the prevention of conception, makes no exception in favor of physicians or in favor of the importation of contraceptive articles for the prevention or cure of disease. The government, therefore, instituted proceedings to have the pessaries offered for importation forfeited. Defeated in the trial court, it appealed to the United States circuit court of appeals for the second circuit, a circuit covering only three states, Connecticut, New York and Vermont. "The question is," said the appellate court, "whether physicians who import such articles as those involved in the present case in order to use them for the health of their patients are excepted by implication from the literal terms of the statute." After quoting the law of the state of New York, which permits the furnishing of articles for the prevention of conception to physicians who may in good faith prescribe their use for the cure or prevention of disease, the circuit court of appeals held that the tariff act of 1930 forbidding the importation of articles for the prevention of conception did not bar the importation of articles employed by physicians in their professional practice for the purpose of saving life or promoting the well being of their patients.

The circuit court of appeals seems to have based its decision in part on the assumption that the tariff act of 1930, so far as it relates to the importation of articles for the prevention of conception, embraces only such articles as Congress would have denounced as immoral if it had understood all the conditions under which they were to be used. In the opinion of the court, the purpose of the act "was not to prevent the importation, sale, or carriage by mail of things which might intelligently be employed by conscientious and competent physicians for the purpose of saving life or promoting the well being of their patients." One of the three justices of the court, however, although concurring in its judgment, said "There seems to me substantial reason for saying that contraceptives were meant to be forbidden, whether or not prescribed by physicians, and that no lawful use of them was contemplated."

1. *United States v. One Package*, 86 Fed. (2d) 737.
2. 18 U. S. C. A., sec. 396.

The decision of the court obviously relates only to the matter before it; namely, the right of physicians to import contraceptive articles "for the purpose of saving life or promoting the well being of their patients." It rests largely on the assumption by the court as to what Congress would or would not have done if it had understood certain conditions, and on the assumption that Congress did not understand such conditions. Whether other United States circuit courts of appeal throughout the United States, of equal rank, and the United States Supreme Court, if the issue comes before it, will indulge in such assumptions, it is impossible to foresee. The present decision has no reference to the right of physicians to advise the practice of conception, or to operate on or treat a patient to accomplish that end, or to prescribe or supply articles for the prevention of conception. Federal law, in fact, except in the territories and the District of Columbia and in other places under the exclusive jurisdiction of the federal government, is powerless with respect to such matters, except as they involve the use of the United States mails or enter into interstate or foreign commerce. With those exceptions, the law of the state is supreme within its own territorial jurisdiction.

Now the National Committee on Federal Legislation for Birth Control, Inc., has sent out printed copies of the decision in the present case, under glaring headlines, "NOW BIRTH CONTROL IS LEGAL." It has sent to the secretaries of county medical societies throughout the United States letters proclaiming the decision "as a bill of rights for the medical profession" and requesting that the members of the societies be notified that "NOW contraception may take its rightful place in preventive medicine and public health" and that "physicians may NOW give contraceptive advice in public as well as private practice; that hospitals, dispensaries and public health agencies may—and should—NOW include birth control in their services." The committee, too, has suggested to editors that they bring to the attention of their readers information concerning the alleged establishment of "the legality of medical practice in the field of contraception." This propaganda is essentially misleading. The decision on which it is based means merely that physicians who desire to import pessaries for contraceptive purposes from Japan or other countries, through Connecticut, New York and Vermont, within the second judicial circuit of the United States, may do so.

Physicians who desire to import contraceptive devices and preparations through ports elsewhere than in New York, Connecticut and Vermont cannot rely altogether for protection on the decision of the circuit court of appeals for the second circuit; outside its own circuit its decision is not binding but is only of persuasive influence. In the District of Columbia and in the territories, the laws of the United States still forbid the giving of information or the distribution of devices and appliances for the prevention of conception and

make no exception in favor of physicians. The decision on which the National Committee on Federal Legislation for Birth Control has relied to support its propaganda has and can have nothing to do with the legality or illegality of the practice of contraception within any state except as that practice may involve foreign and interstate commerce or the use of the mails.

COOPERATIVE MEDICINE

In the organization section in this issue of *THE JOURNAL* appears a discussion of cooperatives. Dr. James Peter Warbasse, president of the Cooperative League of the United States, has set forth his ideas of how cooperation may be applied to the provision of medical service, in a pamphlet published by the league under the title "Cooperative Medicine." It is difficult for him or for any one else to reconcile cooperative principles with any proposal to furnish medical service. He concludes that, since medical colleges and hospitals had low standards when they were owned and operated by physicians, consumer control would improve these standards; the medical profession, however, raised the standards, not any lay organizations or the government.

Dr. Warbasse suggests that the "cooperative method" requires a "group of 150 to 500 families, who should unite to employ a physician full time." Then he throws away the cooperative principle of equality and accepts the professional principle of the sliding scale in the conclusion that "it is best that the annual costs per member be graded according to family income." He would have three income classes, one of which would pay \$40, one \$20 and one \$10 a year. Just how would this differ from the sort of contract medicine that has been built up by lodges and other groups, and still more frequently by unscrupulous promoters?

While he insists that "only high class physicians would be brought into the project," nowhere does he tell how this can be done in view of the opposition of physicians, which is based on the fact, learned from hard experience, that such methods lead to deterioration of service and attract only the incompetent and unethical physician. He warns groups to "beware lest a physician who is not well qualified for the position take the initiative in organization for the purpose of making a job for himself." This is exactly what has happened and what would continue to happen.

Dr. Warbasse is himself too thoroughly familiar with the conditions of good medical practice to suggest that one of the fundamental principles of cooperation should be put into operation; namely, buying at wholesale, selling at the market price, and distributing the difference as a "patronage dividend." He also realizes that the selection of a physician for others by the directors of the scheme would not please everybody. As to those who are not pleased, he says "There remains only one thing for them to do: that is, to withdraw from the

organization." Dr. Warbasse's essay leads to just one logical conclusion: A man who is both a sincere cooperator and a competent physician finds his intellect in a civil war; it is impossible to reconcile these two positions sufficiently to apply cooperative principles in practice to medical service.

Current Comment

POISON GAS

The threat of the use of poison gas in strife among European nations now casts its shadow over all the world. The British Medical Association has issued instructions to all physicians and pharmacists for the use of gas masks and the treatment of gas injuries. In most European countries physicians and pharmacists are the agents disseminating the information for combating gas attacks. Some governments have instituted drills in the use of gas masks by the people generally and have built gas proof cellars as places of refuge during attacks. America cannot overlook this potential menace which has accompanied the advances made by science. As poison gases are manufactured and used in industry as well as in civil strife, knowledge of the antidote and safeguards against injury should be made available. With an ever greater use of chemicals by the average citizen, there is an increasing toll of casualties arising from poison gases. Death will often result if the attendant cannot recognize the nature of the poison to which the victim has been exposed. Without special training a physician could not efficiently treat cases involving the newer organic poisons. Many agencies will be required to develop and collect accurate information on this subject and to disseminate the information in sufficient detail to make it usable to the physician, to his co-workers in the hospitals and pharmacies, and to the public at large. Such information is important in industry and in war.

EFFECT OF GARLIC ON THE FLAVOR AND ODOR OF MILK

In spite of several recent studies of the question, the source of garlic breath odor remains a somewhat controversial subject. Babcock,¹ in a United States Department of Agriculture bulletin, in 1925 reported a group of studies on cows which may throw some further light on this matter. The defined objectives mentioned in that report were to determine how garlic flavor and odor entered milk, to determine the length of time required after consumption of garlic for the flavor and odor to enter the milk, and to determine the length of time after cows consumed garlic before the flavor and odor disappeared from the milk. The garlic fed to the nine Jersey and seven Holstein cows used in the observations was of the variety commonly found growing wild. Only the garlic tops were fed and at the time of feeding were about ten or twelve inches high. Samples were taken from the milk of

each cow at the time of milking, given a key number and cooled but not aerated. The samples were judged for flavor and odor by experienced judges who had no knowledge of the key. When samples of milk were taken between three and one-half and five minutes after feeding the garlic, only 12.5 and 6.3 per cent of the opinions rated the milk normal in flavor and odor, respectively. The brevity of this interval indicated that it was not necessary for garlic to be taken into the stomach of the cow before entering the blood stream and thence passing to the udder. In another group of experiments the cows were forced to inhale garlic odor for ten minutes and were then milked at varying intervals after inhalation. When the cows were milked two minutes after inhaling garlic for ten minutes the garlic flavor and odor were pronounced in the milk. The odor was even more pronounced than the flavor. To determine whether garlic could be detected in the blood, cows were fed two pounds of garlic tops, and blood samples were taken from the jugular vein sixteen minutes, thirty minutes and forty-five minutes after feeding. The sample drawn sixteen minutes after feeding was rated "not perceptible," as the judges failed to identify a garlic odor. In the two later samples the garlic odor was readily identified. A comparison of these blood tests with the milk tests showed what appears to be a discrepancy in time. This may be due to one or more causes. Thus, the garlic flavor and odor may have an affinity for fat and therefore pass rapidly from the blood to the milk. It may also be that garlic is more easily preserved in milk than in blood. The principal deductions, however, are obvious.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Dr. Vinsonhaler Is Still Dean.—Dr. Frank Vinsonhaler writes that he has not retired as dean of the University of Arkansas School of Medicine, Little Rock, and that the date of his retirement has not been determined.

Officers of State Health Board.—Dr. Fergus O. Mahony, El Dorado, was elected president of the state board of health at its quarterly meeting, Little Rock, February 18, succeeding Dr. William G. Hodges, Malvern. Dr. Melvin E. McCaskill, Little Rock, was chosen vice president.

Society News.—Dr. T. Duel Brown, Little Rock, among other speakers, discussed renal abnormalities before the Tri-County Clinical Society in Hope, February 25.—Dr. Fred H. Albee, New York, addressed the Pulaski County Medical Society at the University of Arkansas School of Medicine, Little Rock, February 15, on the value of electrically driven tools in bone surgery.

CALIFORNIA

Hospital Meeting.—The eleventh annual convention of the Association of Western Hospitals, Association of California Hospitals, western conferences of the Catholic Hospital Association and allied groups and sections will be held April 12-15 at the Biltmore Hotel, Los Angeles. According to the preliminary program, the following topics will be discussed: manifold obligations of the hospitals to the public; legislation and hospitals; group hospitalization; the interest of the patient is paramount; the growth, causes and cures of malpractice suits; employee welfare in the broader sense.

1. Babcock, C. J.: Effect of Garlic on the Flavor and Odor of Milk, Bull. 1326, U. S. Department of Agriculture, March 18, 1925.

Lectures on Speech Defects.—Dr. Paul Moses, lecturer in speech defects, University of California Medical School, San Francisco, opened a series of lectures at University Hospital, February 24, with a talk entitled "The Significance of Phonetics in Medical Practice; Selected Topics from the Neurology of the Voice." He spoke, March 3, on "The Relationship Between Voice, Constitution and Character," and, March 10, "Pathology and Therapy of Speech and Voice Diseases." Dr. Moses concluded the series, March 17, with a lecture on "Functions, Diseases and Therapy of the Singing Voice."

Charter Week Celebration.—Clinics, lectures and the annual dinner of the University of California Medical School Alumni Association made up the program for the medical school's observance of "charter week," March 24. The lecturers included:

Ernest L. Walker, Sc.D., Treatment of Malignant Tumors.
Dr. Howard C. Naffziger, Back Pain.
Dr. Fred H. Kruse, Peptic Ulcer.
Hermann Sommer, Ph.D., Shellfish Poisoning.

The departments of medicine, pediatrics, obstetrics and gynecology, pathology and bacteriology cooperated in a symposium on syphilis in the morning, and the annual dinner was addressed by Monroe E. Deutsch, LL.D., vice president and provost of the university, and Dr. Herbert C. Moffitt, clinical professor of medicine.

DELAWARE

Review Course on Obstetrics.—The Delaware Academy of Medicine, Wilmington, instituted a review course on obstetrics, March 11, to continue for six weeks. Dr. Philip F. Williams, assistant professor of obstetrics, University of Pennsylvania School of Medicine, Philadelphia, gave the first lecture on "Causes of Maternal Deaths—Based on Study of Philadelphia Deaths." Dr. Carl H. Davis, Wilmington, is completing the series. The state board of health and the New Castle County Medical Society are cooperating.

FLORIDA

State Medical Meeting at St. Petersburg, April 5-7.—The sixty-fourth annual meeting of the Florida Medical Association will be held at the Vinoy Park Hotel, St. Petersburg, April 5-7, under the presidency of Dr. Orion O. Feaster, St. Petersburg. Papers will be presented by the following:

Dr. Jewel G. Gailey, Blountstown, Some Observations on Blood Pressure.
Dr. Theodore F. Hahn Jr., De Land, Trichinosis.
Dr. William C. Blake, Tampa, Diagnosis of Coronary Heart Disease.
Dr. Turner Z. Cason, Jacksonville, Heart Block.
Dr. Joseph S. Stewart, Miami, Treatment of Tetanus.
Dr. Henry E. Palmer, Tallahassee, Syphilis.
Dr. Douglas D. Martin, Tampa, Acute Appendicitis in Children.
Dr. Wilbur A. McPhaul, Jacksonville, Cooperation of State Board of Health and Medical Profession.
Dr. Wiley M. Sams, Miami, Use and Abuse of the X-Rays in the Treatment of Skin Diseases.
Dr. Cayetano Panettiere, Miami Beach, Carcinoma of the Body of the Uterus.
Drs. Arthur H. Weiland and Charles R. Burbacher, Coral Gables, Gonorrheal Arthritis.
Dr. Lloyd J. Netto, West Palm Beach, Traumatic Surgery.
Dr. Harry Bernard McEuen, Jacksonville, Reaction Following Application of X-Ray Therapy.
Dr. Charles B. Mabry, Jacksonville, A Simplified Method of Treating Fractures of the Shaft of the Humerus.
Dr. Hermon Marshall Taylor, Jacksonville, Deafness from Drugs.
Dr. Joseph Ralph Vallotton, Daytona Beach, Recent Advances in the Diagnosis and Treatment of Asthma.
Dr. Gerard Raap, Miami, Use of X-Radiation in Conditions Other Than Malignancy.
Dr. Robert B. McIver, Jacksonville, Surgery of the Ureter.
Dr. Henry Mason Smith, Tampa, Hypoglycemic Shock Therapy in Schizophrenia with Report of Cases.

Dr. Morris Fishbein, Editor of THE JOURNAL, will address a public meeting in Williams Park Monday evening on "Food Fads and Follies." Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, will appear on the program. Other organizations meeting at the same time include the woman's auxiliary, the Florida Railway Surgeons' Association, Florida Radiological Society, Florida Society of Dermatology and Syphilology and the Florida Pediatric Society.

ILLINOIS

Refresher Courses on Obstetrics and Pediatrics.—A series of lectures on obstetrics and pediatrics is being offered throughout the state as a part of the national program to improve conditions for mothers and children in rural areas. The project is under the direction of a specially appointed committee on infant and maternal welfare in cooperation with the state department of public health, the state medical society, the Illinois Academy of Pediatrics and the American Committee on Maternal Welfare. Dr. Harold H. Hill, formerly associate in the department of obstetrics and gynecology,

University of Illinois College of Medicine, Chicago, as field consultant, is in charge of arrangements. The series opened March 4 in Lincoln with a program for the DeWitt and Logan county medical societies. Dr. Louis Rudolph discussed the management of obstetric hemorrhage and Dr. Clifford G. Grulee, Evanston, infant feeding and prophylaxis of contagious disease. In Sangamon County the program opened March 11 at Springfield and in McLean County March 18 at Bloomington. Each series will run for six weeks consecutively.

CHICAGO

Hospital News.—Presbyterian Hospital expended \$846,571.52 in 1936 to care for 11,503 patients in the hospital and 31,879 nonhospital patient visits. An additional \$96,129.53 was expended to maintain the school of nursing and nurses' home, while the cost of free care given to 5,554 part pay and 2,437 free patients was \$183,299.50.

Meeting on Conservation of Health.—The Chicago Medical Society held a public meeting on conservation of health, March 17, with Dr. Burt R. Shurly, Detroit, as the guest speaker. Dr. Shurly discussed the periodic health examination, and the following Chicago physicians spoke on special subjects: Drs. Austin A. Hayden, hearing; Nathan S. Davis III, heart; G. Henry Mundt, vision, and Arthur H. Conley, orthopedics.

Personal.—Mr. Harry N. Gottlieb has been elected president of the Michael Reese Hospital.—Dr. Arno B. Luckhardt, professor of physiology, School of Medicine, Division of the Biological Sciences, University of Chicago, has been elected a fellow in the International Society of Anesthesia Research in recognition of his discovery of ethylene as an anesthetic.—Dr. Livingston Farrand, who will retire as president of Cornell University, Ithaca, N. Y., June 30, was guest of honor at a banquet, March 12, given by 500 alumni of Cornell from the Chicago district.

Society News.—Drs. Walter Freeman and James W. Watts, Washington, D. C., addressed the Chicago Neurological Society, February 18, among others, on "Subcortical Prefrontal Lobotomy in the Treatment of Certain Psychoses."—The German Medical Society of Chicago was addressed, March 2, by Drs. Adalbert Klaptoz on "Dwarfism Resulting from Hypophyseal Tumor: Operation per Nasal Route," and Otto Meyer, New York, "The Clinical Syndrome of Latent Phlebitis."—At a meeting of the Chicago Society of X-Ray Technicians, March 4, Drs. Ralph G. Willy and Edson W. Carr discussed "The Use of Pitressin as an Aid in X-Ray Diagnosis" and "Darkroom Troubles" respectively. Dr. Marie Ortmyer demonstrated the gastroscope.

INDIANA

Society News.—Dr. Morris Edward Davis, Chicago, among others, addressed the Tippecanoe County Medical Society, Lafayette, March 9, on "Treatment of Hemorrhage Late in Pregnancy."—Dr. Charles P. Emerson, Indianapolis, discussed "The Emotional Element in the Etiology, Course and Prognosis of Disease" before the Indianapolis Medical Society, March 23.

IOWA

Personal.—Drs. Harley L. Sayler and Fred L. Wells, Des Moines, have been granted life membership in the Iowa State Medical Society.—Dr. Azel Ames Jr., formerly of Cincinnati, has been appointed assistant professor of surgery in the State University of Iowa College of Medicine, Iowa City.—Dr. Norman W. Phillips, Clear Lake, was guest of honor at a reception, March 5, in celebration of his completion of fifty years in the practice of medicine.

Speakers' Bureau Activities.—The speakers' bureau of the state medical society recently sponsored a series of lectures on medicine for relief workers, at the request of the director of medical relief of the Iowa Emergency Relief Administration. The bureau is also presenting weekly lectures at Drake University, Des Moines, for which students will be allowed one hour's credit. A series of lectures is also being arranged for the students of Upper Iowa University at Fayette.

Tuberculosis, Heart and Sanatorium Associations Meeting.—The Iowa Tuberculosis Association, the Iowa Sanatorium Association and the Iowa Heart Association held a joint meeting in Des Moines, March 11-12, with headquarters at the Hotel Savery. The first day was devoted to symposiums on prophylaxis and early diagnosis of heart disease, essentials of diagnosis of pulmonary tuberculosis, collapse therapy in pulmonary tuberculosis and coronary thrombosis, and the tuberculosis problem today was considered from various perspectives in a combined medical and lay program Friday.

KANSAS

New Health Officers.—The following physicians have been appointed county health officers:

Dr. William K. Fast, Atchison, Atchison County.
Dr. Fred L. Holcomb, Coldwater, Comanche County.
Dr. William S. Gooch, Fort Scott, Bourbon County.
Dr. Lawrence F. Schuhmacher Jr., Meade, Meade County.
Dr. William L. Wilmoth, Blue Rapids, Marshall County.
Dr. Merle L. Whitney, Virgil, Greenwood County.

Spring Assembly.—The annual spring clinical assembly of the Sedgwick County Medical Society will convene in the Allis Hotel, Wichita, April 6. Clinics will be held by members of the society and the rotating staff of the Sedgwick County Medical Society. Guest speakers include Drs. Edward W. Alton Ochsner, professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, and Henry M. Winans, professor of medicine, Baylor University School of Medicine, Dallas.

KENTUCKY

Personal.—Dr. Benjamin T. Black, Campbellsville, for more than eleven years coroner of Taylor County, recently observed the completion of fifty years in the practice of medicine.

Society News.—Dr. Marvin P. Rucker, Richmond, Va., addressed the Jefferson County Medical Society, Louisville, March 1, on "The Effect of Diet on Pregnancy," as guest of the Louisville Obstetrical and Gynecological Society. Flood activities were described by Drs. Hugh R. Leavell, health officer of the city, John D. Trawick, of the county, and Arthur T. McCormack, of the state.—Dr. Robert Julian Estill, Lexington, addressed the Bourbon County Medical Society, Paris, February 18, on "Pneumonia in Children."—Dr. Elmer S. Maxwell, Lexington, addressed the Scott County Medical Society, Georgetown, February 25, on nephritis.

MARYLAND

Dean of School of Hygiene and Public Health.—Lowell J. Reed, Ph.D., since 1925 professor of biostatistics at Johns Hopkins University, Baltimore, has been appointed dean of the School of Hygiene and Public Health, succeeding Dr. Allen W. Freeman, who has been identified with the school since 1921 and dean since 1934. Dr. Reed will take the post July 1. A graduate of the University of Maine, Dr. Reed took the degree of doctor of philosophy at the University of Pennsylvania in 1915. He alternated on the faculties of both universities until 1917, when he became director of the bureau of tabulation and statistics of the War Trade Board, Washington, D. C. In 1918 he became associate professor of biostatistics at Johns Hopkins and professor in 1925. Dr. Freeman served as state health commissioner of Ohio before joining the Johns Hopkins School of Hygiene and Public Health in 1921. Prior to that he had been demonstrator in physiology of the Medical College of Virginia, 1906-1907, medical inspector of the Richmond Health Department, 1907-1908; assistant commissioner of health of Virginia, 1908-1915; state director of the Rockefeller Hookworm Commission for Virginia, 1910-1914, and epidemiologist of the U. S. Public Health Service, 1915-1917.

MICHIGAN

Graduate Courses.—The department of postgraduate medicine of the University of Michigan Medical School, in conjunction with the Wayne University College of Medicine and the Michigan State Medical Society, announces the following short courses:

April 5-10, electrocardiographic diagnosis.
April 12-16, diseases of metabolism.
April 26-May 1, ophthalmology and otolaryngology.
April 8-May 27, diseases of the blood and blood-forming organs.
April 1-May 20, surgery.
June 28-August 6, medical roentgenology (advanced).
June 28-August 20, laboratory technic; clinical microscopy.
June 28-August 20, summer session courses.
April 19-21, pediatrics.
April 26-28, proctology.
April 29-May 1, diseases of the genito-urinary tract.
May 3-7, gynecology, obstetrics and gynecologic pathology.
May 10-14, general medicine.

Sessions will be held at University Hospital, Ann Arbor, and Herman Kiefer, Receiving, Henry Ford and Children's hospitals, Detroit. Additional information may be obtained from the director of the department of postgraduate medicine, University of Michigan, Ann Arbor.

Personal.—Dr. John McLean, Hartford, observed his ninety-seventh birthday recently.—Dr. Charles A. Cooper, Trimountain, has been appointed chief of the medical staff of the Quincy Mining Company.—Dr. Alden G. Sheets has been elected mayor of Eaton Rapids, which has a population of 2,822.—Dr. Joseph L. Egle has been appointed medical director of the

Gaylord Tuberculosis Sanatorium, Gaylord.—Dr. Clarence E. Humphrey, medical secretary of the Wayne County Medical Society, Detroit, has been selected as president-elect to succeed the late Dr. Frederick B. Burke. He will serve until the annual meeting of the society in May.—Elizabeth C. Crosby, Ph.D., professor of anatomy, University of Michigan Medical School, Ann Arbor, was guest of honor at a dinner, February 2, given by former students whose researches were supervised jointly by the late Dr. Gotthelf Carl Huber and Dr. Crosby. The dinner commemorated the recent publication of the Huber Memorial Volume and was a tribute to Dr. Crosby's help in the preparation of the investigations reported therein, according to the *University Hospital Bulletin*.—Dr. Norbert A. Wilhelm, Boston, was elected superintendent of Butterworth Hospital, Grand Rapids, effective April 1.

MINNESOTA

Graduate Medical Institutes.—The Center for Continuation Study at the University of Minnesota will offer three institutes for practicing physicians during April. Provided the enrolment is sufficient, a course on roentgenologic diagnosis will be held April 12-17, one on irradiation therapy April 19-21, and a third on physical therapy April 22-24.

Dr. Evans Is Guest Lecturer.—Dr. Herbert M. Evans, professor of anatomy and Morris Herzstein professor of biology, University of California Medical School, Berkeley, will address the Minnesota Pathological Society, April 20, on vitamins. He will discuss the same subject the following evening under the Clarence Martin Jackson Lectureship. The lectureship is sponsored by the Phi Beta Pi medical fraternity.

Society News.—Dr. Felix R. Nager, professor of otolaryngology, University of Zurich, discussed "Pathology of Petrositis" before the Minnesota Academy of Ophthalmology and Otolaryngology, February 9, in Minneapolis, and Dr. Cecil S. O'Brien, professor of ophthalmology and head of the department, State University of Iowa College of Medicine, Iowa City, "Tuberculosis of the Anterior Uvea."—Dr. Henry E. Sigerist, Baltimore, discussed "The Social History of Medicine" before the Hennepin County Medical Society, Minneapolis, March 1. Dr. Edwin O. Strassmann, Berlin, Germany, discussed "State Medicine in Europe" before the society, February 3.—Dr. Siegfried J. Thannhauser, Boston, delivered a Mayo Foundation lecture at Rochester, February 8, on "Chemical, Physiologic and Clinical Aspects of Cholesterol."

MISSOURI

Officers of Health Board.—Dr. Edward S. Smith, Kirksville, was elected president of the state board of health, January 30, succeeding Dr. Timothy S. Bourke, Kansas City. Dr. Walter L. Brandon, Poplar Bluff, was chosen vice president, succeeding Dr. William T. Elam, St. Joseph.

Society News.—At a joint meeting of the St. Louis Medical Society and the midwestern and southern sections of the American Congress of Physical Therapy, St. Louis, March 9, Drs. Géza de Takáts, Chicago, discussed "Management of Peripheral Vascular Disease"; Frank H. Krusen, Rochester, Minn., "Physical Therapy in Fibrositis," and Disraeli W. Kobak, Chicago, "Clinical Limitations of Short Wave Diathermy."

Speed Factor in Motor Vehicle Accidents.—A survey was recently made in St. Louis to determine whether speed is a dominant factor in motor vehicle accidents, according to *Illinois Health News*. A maximum speed limit of 30 miles an hour was set and facilities arranged for strict enforcement for thirty days. During the thirty days there were three deaths caused by motor vehicle accidents against fourteen during the thirty days immediately preceding and an average of thirteen per month during 1935. Compared with the thirty days immediately preceding the experimental period, the motor vehicle accidents of all kinds declined by 17.1 per cent, injuries involved in motor car accidents dropped 22.1 per cent, fatalities 77 per cent, hospital cases 20.2 per cent, skull fractures 71.4 per cent, hit and run cases 62 per cent. According to the report, excessive speed is a dominating factor in these accidents and must be controlled to insure safety on the streets.

NEW JERSEY

Personal.—Dr. Berthold S. Pollak, who has completed thirty years as medical director of the Hudson County Tuberculosis Hospital, Secaucus, was honored by a reception at the hospital January 31. Dr. Pollak is to be medical director of a new tuberculosis hospital in the Jersey City Medical Center, now nearing completion.

Handbook of Procedures in Preventive Medicine.—The *Journal of the Medical Society of New Jersey* published as a supplement to its March issue a handbook of procedures in

preventive medicine. Twelve chapters bear the headings: the family doctor, organization, fundamental principles, maternal welfare, child health, crippled children, tuberculosis, cancer control, venereal disease control, mental hygiene, health examination of adults and communicable diseases. It has sixty-eight pages and is bound in heavy paper.

NEW MEXICO

Two Years of Public Health Work.—The New Mexico Bureau of Public Health has published its biennial report covering the year 1935 and the first ten months of 1936. A system of health districts was put into effect July 1, 1935, and in February 1936 social security funds became available. These two events have brought about rapid development. A division of epidemiology was added to the health bureau in 1936, making possible an enlarged program for control of communicable diseases. Typhoid is one of New Mexico's most serious problems because of poor sanitation in much of the state and lack of understanding by a large part of the population of the manner in which the disease is spread. In 1935, 435 cases of typhoid were reported and in the ten months of 1936, 321 cases. More than 12,000 persons were immunized in the fiscal year 1935-1936. Diphtheria has declined in the past four years; 673 cases were reported in 1932, 231 in 1935 and 152 in 1936. Scarlet fever was the most prevalent of all communicable diseases. The bureau has supplied antisyphilitic drugs free, and five free clinics for diagnosis and treatment have been established by local health departments. There were 1,191 cases reported during the period of the report compared with 369 in 1932, an increase attributed to better reporting. Tuberculosis is one of the most important problems. The influx of cases from other states creates a hazard to the native population and many cases of local origin are not seen by a physician. Until 1935 tuberculosis was the principal cause of death and in 1935 it tied for second place with pneumonia; heart disease was first. The general death rate was 13.7 per thousand of population. Under the federal works program a new building for the state laboratory at the University of New Mexico at Albuquerque is under construction. During the period of the report the laboratory has examined 76,219 specimens for diagnosis of such diseases as undulant fever, typhoid and bacillary dysentery in addition to routine work. A special study of dysentery is under way in cooperation with the U. S. Public Health Service. Funds supplied by the Public Health Service, the Children's Bureau and the Commonwealth Fund of New York have promoted the development of the public health nursing program. In 1930 the state had sixteen public health nurses and in 1936 it had fifty-eight, forty-two in county health work, ten employed by school boards and six in supervisory positions.

NEW YORK

Personal.—Dr. William C. Treder, Scotia, has been appointed health officer of Schenectady County. He is a former president and secretary of the Schenectady County Medical Society and has been county coroner since 1921.—Dr. Henry D. Watson, Binghamton, was honored at a testimonial dinner January 12 given by the Broome County Medical Society, which he had served as secretary for twenty-seven years.—Dr. Arthur W. Elting, Albany, has resigned as chairman of the attending staff of Albany Hospital, after ten years' service. Dr. William P. Howard succeeded him.—Dr. George H. Whipple, Rochester, will deliver the fourth annual Alexander Van Rensselaer Lecture at the Drexel Institute of Technology, Philadelphia, April 15. His subject will be "Blood Hemoglobin Production Within the Body as Influenced by Diet and Other Factors Under Experimental Conditions."

New York City

The Sir Robert Jones Lecture.—Dr. Albert H. Freiberg, professor of orthopedic surgery, University of Cincinnati College of Medicine, delivered the seventh Sir Robert Jones Lecture at the Hospital for Joint Diseases, February 18. His subject was "Orthopedic Surgery in the Light of Its Evolution."

Symposium on Neoplasms of the Lung.—The Tuberculosis Sanatorium Conference of Metropolitan New York will hold its tenth clinical session on chronic pulmonary diseases at Cornell University Medical College, April 7. A symposium on primary neoplasms of the lung will be presented by Drs. Wolfgang Grethmann, Coleman B. Rabin, William F. Riehoff Jr., Baltimore, and Milton Sills Lloyd.

Friday Afternoon Lectures.—Dr. Reginald Fitz, Boston, delivered one of the series of Friday afternoon lectures of the Medical Society of the County of Kings, March 19, on

"Treatment of the Diabetic at Home." Other speakers in the series are Drs. Charles F. Geschickter, Baltimore, on "Breast Tumors"; Percy S. Pelouze, Philadelphia, "Blood and Pus in the Urine," and Lee M. Hurd, New York, "Diagnosis and Treatment of Nose and Throat Diseases."

Dr. McGoldrick Honored.—Dr. Thomas A. McGoldrick, chief surgeon of St. Peter's Hospital, was the guest of honor at a dinner arranged by the hospital staff, February 8, at The Towers. Dr. McGoldrick is president of the Medical Society of the County of Kings and chief surgeon of the police department. He was graduated from Long Island College Hospital, now Long Island College of Medicine, in 1896 and was for a number of years a member of the faculty. Among the speakers at the dinner were Drs. Charles Gordon Heyd, President of the American Medical Association; Charles H. Goodrich, president-elect of the Medical Society of the State of New York; John E. Jennings and Thomas M. Brennan. About 500 persons attended the dinner.

Society News.—At a joint meeting of the New York Neurological Society and the section of neurology and psychiatry of the New York Academy of Medicine, March 2, the speakers were Drs. Samuel W. Hamilton, on "The Organic Syndrome in the Psychoses"; Nolan D. C. Lewis, "Constitutional Factors in the Paranoid Psychoses," and William H. Dunn, "An Evaluation of the Biochemical Approach to the Psychoses."—Dr. Elliott P. Joslin, Boston, addressed the Medical Society of the County of Queens, February 23, on "Treatment of Diabetes with Protamine Insulin," and Dr. Beverly C. Smith, on "Treatment of Surgical Complications in Diabetes."—Dr. Abernethy Benson Cannon was the speaker at a stated meeting of the New York Academy of Medicine, March 3, on "Significance of Serologic Tests in Syphilis."

NORTH CAROLINA

New Health Officers.—Dr. Murray P. Whichard, Edenton, has been appointed health officer of Chowan County. Dr. Robert M. Bardin, Rutherfordton, recently health officer of Rutherford County, has been appointed in Richmond County to succeed Dr. Bennie B. Dalton, Rockingham; Dr. Charles H. Peete, Warrenton, in Warren County, and Dr. John S. Anderson, New Bern, in Craven County. Dr. Marion H. Seawell, Jackson, has resigned in Northampton County.

OHIO

New Officers of State Medical Board.—Dr. Lee Humphrey, Malta, was elected president of the State Medical Board of Ohio at a recent meeting; Dr. Floyd S. Meck, Cleveland, was elected vice president, Dr. Chester W. Waggoner, Toledo, treasurer, and Dr. Herbert M. Platter, Columbus, was reelected secretary. Other members of the board are Drs. John H. J. Upham, Columbus, President-Elect of the American Medical Association; John R. Shoemaker, Cuyahoga Falls; Roy C. Hunter, Wapakoneta, and Louis T. Franklin, Chillicothe.

Society News.—Dr. Owen H. Wangenstein, Minneapolis, addressed the Academy of Medicine of Cleveland, March 19, on "Management of Intestinal Obstruction." Members of the Cincinnati Academy of Medicine presented the program of the academy, February 19, as follows: Drs. Marion A. Blankenhorn, "A Clinical Study of Pellagra in Birmingham, Ala."; Lee Foshay, "Tularemia," and Howard D. McIntyre, "Problems of Infectious Polyneuritis."—Dr. George F. Cahill, New York, addressed the Summit County Medical Society, Akron, March 2, on "Hirsutism and Virilism, with Adrenal Studies." Dr. William B. Castle, Boston, addressed the society, February 2, on "The Treatment of Anemia from the Point of View of the General Practitioner."—Dr. Alfred A. Jenkins was elected president of the Cleveland Medical Library Association at its annual meeting January 15, and Dr. Harry D. Piercy, secretary. The library has endowments of more than \$300,000 and a collection of 51,000 volumes.

PENNSYLVANIA

Personal.—The board of managers and the staff of Reading Hospital gave a dinner February 10 in honor of Dr. John Lincoln Bower, Birdsboro, who has been a member of the staff for thirteen years. Dr. William S. Bertolet, Reading, was toastmaster.—Dr. John L. Atlee Sr. has been appointed medical director of St. Joseph's Hospital, Lancaster, to succeed Dr. Newton E. Bitzer, who has been made medical director emeritus.—Dr. Joseph Scattergood, West Chester, was honored at a dinner given by the Chester County Medical Society, February 24, in recognition of his twenty-nine years of service as secretary of the society. Dr. John A. Farrell was toastmaster. Dr. Joseph Scattergood Jr. has succeeded his father as secretary.

Society News.—Dr. John Huber Wagner, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, March 11, on "Fractures in General Practice."—Dr. Thomas A. Shallow, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, in February, on "Diagnosis of Upper Abdominal Surgical Pathology."—Dr. W. Norman Elton, Reading, was elected president and Dr. Abner H. Bauscher, Reading, president-elect of the Northeastern Pennsylvania Chapter of the National Society for the Advancement of Gastro-Enterology at its organization meeting at Easton February 3. Dr. Frederick G. Robinson, Scranton, was made vice president and Dr. Gilbert I. Winston, Reading, secretary.—Drs. William Devitt and Ross K. Childerhose, Allenwood, addressed the Lycoming County Medical Society, Williamsport, March 12, on "Early Diagnosis and Treatment of Pulmonary Tuberculosis in Its Early Stages."—Dr. Arthur M. Dannenberg, Philadelphia, addressed the Lebanon County Medical Society, Lebanon, March 9, on "Childhood Tuberculosis."

Philadelphia

Executive Secretary Appointed.—Mr. Harry J. Rodgers has been appointed executive secretary of the Philadelphia County Medical Society to succeed the late Franklin M. Crispin. Mr. Rodgers has been a member of the staff of the city department of health for more than twenty years, according to the *Weekly Roster and Medical Digest*.

Graduate Seminars.—A group of seminars on physical diagnosis has been presented recently under the auspices of the Philadelphia County Medical Society, as follows:

February 12, Dr. William D. Stroud, Determination of Cardiovascular Efficiency.

February 19, Dr. James Alexander Clarke Jr., The Nontuberculous Chest.

February 26, Dr. John A. McGlinn, Gynecologic Findings and Interpretations in Routine Examinations.

March 5, Dr. Charles W. Dunn, Obscure Endocrinopathies.

Public School for Crippled Children.—The J. Willis and Elizabeth Martin Orthopedic School was opened February 5 to care for all crippled children in Philadelphia. Special equipment includes a swimming pool, specially designed baths and showers, orthopedic desks and chairs. Classrooms are large, with desks widely spaced and ample room for wheel chairs. An infirmary, shops for handicraft work, a sun room and a gymnasium are other features. Busses will bring the children to the school. The building cost \$600,000, part of which was supplied from WPA funds.

Society News.—The section of otolaryngology of the New York Academy of Medicine held a joint meeting with the section on otolaryngology of the College of Physicians of Philadelphia, March 17, with the following speakers: Drs. Horace J. Williams, on "Acute Leukemic Labyrinthine Disease"; Walter Hughson, "Significance of Experimental Otology," and Gabriel Tucker, "Bronchoscopy in the Management of Postoperative Pulmonary Complications."—At a meeting of the Philadelphia Neurological Society, March 19, the speakers included Drs. Eleanor Scott on "The Possible Cerebral Factor in Hypertension" and Robert A. Matthews, "Chronic Encephalitis: Symptomatic Treatment with Benzedrine Sulfate."

Pittsburgh

Personal.—Dr. Waid E. Carson has been appointed professor of ophthalmology in the University of Pittsburgh School of Medicine.

Society News.—At a meeting of the Allegheny County Medical Society, March 16, the speakers were Drs. William W. McFarland, on the work of the general health council; Chauncey L. Palmer, pending health legislation, and George R. Harris, provisions of the compulsory health insurance bill.—Dr. Alfred Stengel, Philadelphia, delivered the Drs. Charles and Karl Emmerling Memorial Medical Lecture of the Pittsburgh Academy of Medicine, March 23. His subject was "The Influence of Abdominal Diseases on the Heart and Circulation."

SOUTH CAROLINA

State Medical Meeting at Columbia.—The eighty-ninth annual session of the South Carolina Medical Association will be held in Columbia, April 13-15, at the Jefferson Hotel. The guest speakers will be Drs. Morris Fishbein, Chicago, Editor of THE JOURNAL, who will address a public health meeting Wednesday evening, April 14, on "Food Fads and Follies," and Abernethy Benson Cannon, New York, who will speak at a luncheon meeting on "Skin Problems Encountered in General Practice." Dr. Fishbein will also speak at the laying of the cornerstone of a new building of the South Carolina Tuberculosis Sanatorium, State Park, sponsored by the Grand

Lodge of Masons of South Carolina in the afternoon of April 14; his subject will be "Weapons Against Tuberculosis." Dr. Cannon will conduct a skin clinic Thursday morning April 15. Among South Carolina physicians on the program will be:

Dr. Douglas Jennings, Bennettsville, Ectopic Pregnancy.

Dr. Charles O. Bates, Greenville, Psychoneurosis Following Injury.

Dr. Walter R. Mead, Florence, Recognition, Differentiation and Management of the Commoner Cardiac Crises.

Dr. Leon Banov, Charleston, The Medical Profession and the Public Health.

Dr. Julian P. Price, Florence, Pernicious Malaria in Children.

Drs. Francis B. Johnson and James E. L. Reveley, Charleston, Meningococcal Meningitis—An Analysis of 100 Cases.

During the meeting a new psychopathic building will be dedicated at the South Carolina State Hospital, with Dr. Walter L. Treadway, head of the division of mental hygiene of the U. S. Public Health Service, Washington, D. C., as the guest speaker. Dr. Robert C. Bruce, Greenville, is president of the association.

SOUTH DAKOTA

Meningitis in Custer.—Newspapers reported March 20 that six deaths had occurred in an epidemic of meningitis at Custer. The outbreak started in a Civilian Conservation Corps camp; four of the victims were members of the corps and two were citizens of Custer.

TENNESSEE

State Medical Meeting at Knoxville.—The one hundred and fourth annual meeting of the Tennessee State Medical Association will be held in Knoxville, April 13-15, under the presidency of Dr. Wilson L. Williamson, Memphis. The guest speakers will be Drs. Charles Gordon Heyd, New York, President of the American Medical Association; Norman L. Higinbotham, New York; Louis A. Buie, Rochester, Minn., and Frank E. Whitacre, Chicago, now conducting graduate courses in obstetrics in the state. Among Tennessee physicians listed on the tentative program are:

Dr. Robert B. Wood, Knoxville, The Commoner Clinical Allergies.

Dr. Philip H. Levinson, Chattanooga, Angina Pectoris and Coronary Occlusion: Diagnosis and Treatment.

Dr. Barney Brooks, Nashville, Results Obtained in About 300 Operations in the Past Ten Years in Vanderbilt Hospital on Patients More Than 70 Years of Age.

Drs. William D. Haggard and James Kirtley Jr., Nashville, Ligation of Saphenofemoral Junction with Retrograde Sclerosing Injections for Varicose Veins.

Drs. Nicholas Gotten and Otis S. Warr, Memphis, Relation of Water Balance to Intracranial Pressure.

Dr. Jere L. Crook, Jackson, Radium—An Indispensable Means of Therapy in Its Field of Service to Humanity.

Dr. William Battle Malone, Memphis, Gas Gangrene—Its Prevention and Treatment.

Meeting with the association will be the Tennessee Academy of Ophthalmology and Otolaryngology, April 12, and the Tennessee Pediatric Society, April 13. Among speakers before the academy will be Drs. Marvin M. Cullom, Nashville, on "Chronic Purulent Otitis Media and Mastoiditis," and Charles K. Lewis, Memphis, "Injection of the Sphenopalatine Ganglion for the Relief of Facial Neuralgia." Guest speakers at the pediatric meeting will be Drs. Alfred A. Walker, Birmingham, Ala., on "Enlargements of the Spleen in Infants and Children"; Laurence R. DeBuys, New Orleans, "The New-Born," and Joseph Yampolsky, Atlanta, Ga., "A Comparative Study of the Use of Acetarsone and Other Drugs in the Treatment of Syphilis in Children."

TEXAS

Changes in State Health Department.—Dr. William Arthur Smith, San Antonio, has been appointed director of mental hygiene in the state department of health, and Dr. Robert B. Wolford, formerly of Wichita Falls, director of the bureau of communicable diseases. Dr. Smith was formerly assistant superintendent of the San Antonio State Hospital, having resigned to enter private practice.

WASHINGTON

Society News.—Dr. Winchell McK. Craig, Rochester, Minn., addressed a special meeting of the Spokane County Medical Society, Spokane, March 29, on "Surgical Treatment of Hypertension." Dr. Eugene B. Potter, Seattle, addressed the society, March 11, on "Surgical Treatment of Peptic Ulcer."—Dr. Karl A. Menninger, Topeka, Kan., addressed the King County Medical Society, March 15, on "The Psychoneurotic and the General Practitioner."

Fifty Years of Practice.—Dr. Orville R. Allen, Lake Stevens, was honored by the Snohomish County Medical Society with a complimentary dinner February 11 at the Monte Cristo Hotel, Everett, in celebration of his fiftieth year of practice.

Dr. Allen was born in Illinois, where his father was a partner of Abraham Lincoln in a grist mill, according to *Northwest Medicine*. He graduated from Rush Medical College, Chicago, in 1887 and practiced in Missouri and in several towns in Washington before settling in Lake Stevens in 1914. An oil painting of Dr. Allen by Mrs. Allen was presented to the medical society to hang in its library.

WISCONSIN

University News.—Dr. Phillips F. Greene, chief surgeon of Yale-in-China Medical School and Hospital, Changsa, Province of Hunan, China, gave an address at the University of Wisconsin Medical School convocation, March 11, on medical opportunities in the Orient. Dr. Greene is spending this year at Yale University and New Haven Hospital. —Dr. John H. J. Upham, Columbus, Ohio, President-Elect of the American Medical Association, gave an address at Marquette University School of Medicine, Milwaukee, February 20, on "Changing Times in Medicine."

PHILIPPINE ISLANDS

New Dean of Medical School.—Dr. Antonio G. Sison, professor of medicine, College of Medicine, University of the Philippines, Manila, has been appointed dean of the college to succeed Dr. Fernando Calderon, who retired in October 1936. Dr. Sison is 53 years old and graduated from University of Pennsylvania School of Medicine, Philadelphia, in 1908. He is a former chairman of the medical division of the Medical Research Council of the Philippines and has been president of the Manila Medical Society and the Philippine Islands Medical Association.

PUERTO RICO

Course for Tuberculosis Workers.—An institute for tuberculosis workers was conducted at the University of Puerto Rico, March 10-18, under the personal direction of Philip P. Jacobs, director of publications and extension, National Tuberculosis Association, New York. The course was designed for the social workers and nurses under the direction of the department of health, although other persons were admitted. It was adapted to the needs and problems in Puerto Rico.

GENERAL

American Leprosy Foundation.—The board of directors of the Leonard Wood Memorial for the Eradication of Leprosy has approved the use of the name American Leprosy Foundation to identify its activities in this country and abroad. The board felt that the change was necessary since the activities of the organization had taken on an international character and because the name Leonard Wood Memorial means little outside the United States. It emphasizes that while the new name has been approved the corporate name has not been changed.

Opportunity for Physicians in California.—The California State Personnel Board is holding an examination May 1 for the position "physician and clinical pathologist." The examination is open to physicians in all parts of the United States who are graduates of approved medical schools with three years of experience in the licensed practice of medicine with specialization in clinical pathology, bacteriology and serology or some other equivalent combination of education and experience. The applicant must have a license to practice in California or be able to secure one. Age limits are from 26 to 50 years. Applications should be filed with the California State Personnel Board, Sacramento, Calif., before April 24.

Association for Study of Neoplastic Diseases.—The annual meeting of the American Association for the Study of Neoplastic Diseases will be held in Philadelphia at Jeanes Hospital April 8-10. Among those who will participate in the discussions will be:

Dr. George A. Stewart, Baltimore, Cured Cases of Cancer.
Dr. Elwood E. Downs, Woodbury, N. J., Effects of Radiation on the Lungs in the Treatment of Breast Cancer.
Dr. Albert DeCrombrughe, Washington, D. C., Eye Tumors.
Dr. Edward B. Soper, Philadelphia, Lymph Nodes.
Dr. Charles F. Goss, Philadelphia, Tumors of the Ovary.
Dr. Stanley P. Lippman, Philadelphia, Chemical Factors Concerned in Cell Growth and Development.

Dr. Stewart is president of the association and Dr. Eugene R. Whitmore, Washington, D. C., secretary.

Progress in Use of Standard Nomenclature.—The National Conference on Nomenclature of Disease states in its annual report that nearly 300 hospitals are now using the standard nomenclature sponsored by the conference. The conference conducts a large correspondence with physicians and hospitals concerning the nature of disease, and the nomenclature has become a textbook in diagnosis and only secondarily

a list of diseases, the report says. Financial assistance is afforded by the Commonwealth Fund, the Metropolitan Life Insurance Company, the Carnegie Corporation and the fifty-four member hospitals of the conference. Dr. Haven Emerson, New York, is president of the conference, Dr. Henry A. Christian, Boston, vice president, and E. H. Lewinski-Corwin, Ph.D., secretary.

Grants Available from Plotz Foundation.—Applications for grants of funds for research in medicine and surgery from the Ella Sachs Plotz Foundation must be in the hands of the executive committee before May 1. As a rule preference is given to research on a single problem or on closely allied problems, but during the present great need for funds grants will be given in the sciences closely related to medicine without reference to special fields. The maximum size of the grants will usually be less than \$500. There are no formal application blanks, but letters asking for aid must state definitely the qualifications of the investigator, an accurate description of the proposed research, the size of the grant requested and the specific use of the money. It is desirable to include letters of recommendation from the directors of the laboratories or clinics in which the work is to be done. Applications should be sent to Dr. Joseph C. Aub, Collis P. Huntington Memorial Hospital, 695 Huntington Avenue, Boston. During the past year thirty grants were made by the foundation, eighteen of which went to scientists outside the United States. In the thirteen years of its existence the foundation has made 282 grants.

Lectures on Growth and Development of the Child.—The concluding lectures in the radio forum on the growth and development of the child, under the auspices of the National Congress of Parents and Teachers, the American Academy of Pediatrics and the National Broadcasting Company, are as follows:

Charles W. Savage, professor emeritus of physical education, Oberlin College, Oberlin, Ohio, April 7, Physical Education for Growing Children.

Dr. Joseph Brennemann, chief of staff, Children's Memorial Hospital, Chicago, April 14, Disease and the Doctor's Side of Growth.

Dr. Martha M. Eliot, assistant chief, Children's Bureau, U. S. Department of Labor, Washington, D. C., April 21, Effects of Family Income on a Child's Growth.

Dr. Richard A. Bolt, director, Cleveland Child Health Association, April 28, Effect of Child Labor on Growth.

Dr. Carroll E. Palmer, medical officer in charge of child hygiene investigations, U. S. Public Health Service, Washington, D. C., May 5, Growth of Children During Wars and Depressions.

Louis I. Dublin, Ph.D., statistician, Metropolitan Life Insurance Company, New York, May 12, Health Hazards in the Period of Growth.

Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, Johns Hopkins University School of Medicine, Baltimore, May 19, Old and New Thoughts About Growth.

The lectures are on the Blue network of the National Broadcasting Company every Wednesday from 4 to 4:30 p. m., eastern standard time.

Society News.—The Alpha Mu Pi Omega Fraternity will hold a luncheon and biennial meeting at 12 noon at the Hotel Madison, Atlantic City, June 9.—The Western Branch of the American Public Health Association will hold its eighth annual meeting in Phoenix, Ariz., April 13-15.—Dr. Donald B. Armstrong, New York, has been reelected president of the National Health Council and Maurice A. Bigelow, Sc.D., New York, secretary. The American Red Cross and the Maternity Center Association have become active members.—The Tri-State Hospital Assembly of Illinois, Indiana and Wisconsin will be held May 5-7 at the Hotel Sherman, Chicago.—Dr. Herman L. Kretschmer, Chicago, was elected president of the Clinical Society of Genito-Urinary Surgeons at its recent annual meeting in Chicago. Dr. John R. Caulk, St. Louis, was chosen vice president, and Dr. Henry G. Bugbee, New York, was reelected secretary. The next annual meeting will be held in Boston.—At the annual meeting of the American Orthopsychiatric Association in New York, February 19-20, Dr. George J. Mohr, Chicago, was elected president and Dr. Norvelle C. La Mar, New York, secretary. The next meeting will be in Chicago, Feb. 24-26, 1938.—The luncheon of the Phi Rho Sigma medical fraternity during the annual session of the American Medical Association in Atlantic City will be at the Hotel Ambassador, Wednesday, June 9.—The Catholic Hospital Association of the United States and Canada will hold its annual meeting at the Stevens Hotel, Chicago, June 14-18.—Clarence C. Little, Sc.D., Bar Harbor, Maine, was reelected president of the American Birth Control League at its annual meeting in New York in January.—Dr. J. Frank Highsmith, Fayetteville, N. C., was chosen president-elect of the Tri-State Medical Association of the Carolinas and Virginia and Dr. Howard R. Masters, Richmond, was elected president at the annual meeting in Norfolk, February 22-23. This is the first time the association has elected a president-elect. Elected as vice presidents were Drs. David C.

Wilson, Charlottesville, for Virginia; David W. Ruffin, Ahoskie, for North Carolina, and Charles N. Wyatt, Greenville, for South Carolina. Dr. James M. Northington, Charlotte, N. C., was made secretary. Next year's meeting will be in Asheville. Guest speakers were Drs. Frank H. Lahey and Elliott P. Joslin, Boston.

Pathologic Specimens in Otolaryngology Available for Loan.—The division of otolaryngology of the Registry of Pathology in Otolaryngology, Army Medical Museum, Washington, D. C., has assembled a loan collection of histopathologic preparations. Twenty-five sets are available. Requests should be sent to the curator of the Army Medical Museum, with a check for \$25 as a deposit. On the return of the set after three weeks, the money will be returned, minus the cost of shipment. If a preparation is broken or lost during the loan there will be a charge of \$1 per preparation. An album of microphotographs of the preparations and photographs of the gross specimens, together with descriptive material, will be furnished with the loan set. Fifty-one specimens have been assembled during the two years existence of the division of otolaryngology of the registry and it is hoped that the number may be raised to 100 preparations. To this end, specimens should be sent to the museum in the proper containers and solution together with a fairly complete history of the cases from which they are taken. Diagnosis will be made and a section will be sent to any one that sends a gross preparation. It is to be understood that there is no time limit for the return of the preparation because the laboratory of the division is not competing with any other laboratory. The Army Medical Museum, under the direction of the surgeon general of the U. S. Army, has had a registry for a number of years in the branches of ophthalmology, dental surgery, bladder tumors and lymphatic tumors. The division in otolaryngology was established two years ago through the efforts of Dr. Joseph C. Beck, Chicago, who is its director, and under the auspices of the American Academy of Ophthalmology and Oto-Laryngology. Any member of the academy or any otolaryngologist sponsored by a member of the academy can obtain the loan of these sets. Any further information may be obtained from the curator of the museum.

FOREIGN

International Ophthalmological Congress.—The fifteenth International Ophthalmological Congress will be held in Cairo, Egypt, December 8-14. The official subjects to be discussed are "Arterial Hypertension of the Retina" and "Endocrinology and the Eye." The secretary general of the congress is Dr. M. Tewfik, P. O. B. No. 2001, Cairo, Egypt.

St. Thomas's Hospital Begins New Series of Reports.—St. Thomas's Hospital, London, has issued the first volume of a new series of reports which is a departure from its former style. The hospital began to publish reports in 1835, but this effort did not continue beyond 1836. Continuous publication was begun in 1870. With the development of general periodical medical literature, contributions of original articles waned until latterly the report has consisted principally of statistics. The new series will be made up of annual volumes containing original articles in which the work of the hospital will be reflected. The first volume contains nineteen original articles and 199 pages.

International Hospital Meeting.—The International Hospital Association will hold its fifth congress in Paris, July 6-11. The Federation of Hospital Unions of France has been designated by the Ministry of Public Health to cooperate with the association in planning the program and arrangements. The meeting will occur during the International Exposition in Paris, at which special privileges will be granted to the visitors. Persons attending the congress will benefit by reductions in rates on the French and foreign railroads. The chairman of the committee on arrangements is M. Albert Chenevier, No. 3 Avenue Victoria, Paris IV. Dr. Malcolm T. MacEachern, Chicago, is vice president of the association.

CORRECTIONS

The Bryce Hospital.—The average census of patients in the Bryce Hospital, Tuscaloosa, Ala., for the last fiscal year, was 3,475 instead of 475 as reported in the Hospital Number of THE JOURNAL, March 27, page 1061. The number of beds is 3,261.

Metrazol.—It was erroneously stated in "Poisoning With Barbituric Acid Derivatives" (Queries and Minor Notes, THE JOURNAL, March 13, 1937, p. 908) that metrazol is a soluble camphor derivative. Metrazol is a synthetic, organic chemical compound; namely, pentamethylentetrazol.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 6, 1937.

Criticism of the Protective Measures Against Poison Gas

In the House of Commons, Mr. Pritt said that the government proposed to teach people that, first, they should have gas-proof rooms and use them, and that gas masks would be a second line of defense in the event of such rooms being broken up, or if they happened to be out when the danger began. This was a sham. It had been demonstrated that the walls of ordinary buildings admitted air with such facility that on a windy day a volume of air equivalent to that in the room would enter in fifteen minutes, although the method of gas proofing recommended by the government was carried out. A gas that would kill a person in the open air in six minutes would kill a person in "the gas-proof room" in sixty minutes. It had been said that gas masks were satisfactory, but what was being done for the people who could not wear them? A very large number under the age of 5 years could not wear them and many were too old to wear them.

For the government Mr. Geoffrey Lloyd replied that the methods of gas proofing recommended were taught at the Civilian Anti-Gas School, where gas was discharged against wooden structures erected for demonstration purposes. The government was satisfied that the methods would afford a great measure of protection against any concentration or type of gas that might be expected. The gas masks were specially designed to provide less resistance to breathing than those issued to troops and so could be worn by children and old persons. For infants and young children a special device was being designed.

The most important criticism of the government's measures is a pamphlet issued by "The Cambridge Scientists Anti-War Group." They say: "If the gas is strong enough to injure a man fatally in one hour, then he will receive an equal dose in two and one-half to four hours in his 'gas-proof' room. If the gas is much stronger and would kill in five minutes, the survival time in the room would be only half an hour to one hour. These calculations are made on the assumption that the concentration of the gas remained constant, as it would if a persistent gas were sprayed down the street." They also say that in working-class homes a gas-proof room could seldom be provided, and describe experiments to show that gas masks have only a limited value, and they are doubtful about the possibility of protecting young children. This "group" is accurately described by its title. Its members are all scientists and some of them are eminent. Every one in this country is "anti war," but the term here is used by men who, in some cases at any rate, consider war such an evil that they would not take part in it even to resist aggression. Such persons refused to fight in the war and were called "conscientious objectors." They would not be tolerated in any of the other countries of Europe. They evidently think that one way of preventing war is to persuade the public that the precautions which are being taken are of little value. Their conclusions are not accepted by the government, who suggest political motives.

The Radium Treatment of Cancer

The Holt Radium Institute of Manchester gives in its annual report a review of its results in the treatment of cancer. A generation ago it was generally accepted that most patients admitted to a cancer hospital had but a few months to live and that all which could be done was to nurse and relieve them by administering anodynes. Surgery always worked under the difficulty that operations for any but the earliest stages had

to be extensive. Hence its usefulness was often lost because the patients' fear of the knife made them afraid to seek advice early, when a simple operation might have been successful. When they came later for treatment, a mutilating operation was necessary and the chance of permanent cure was remote. The present report shows that the results of the early treatment of cancer by radiotherapy are extraordinarily good and it even claims that if all early cases were treated cancer in many sites would no longer be a dreaded disease.

In 1933, 1,013 cases of cancer were treated at the institute. The disease affected the mouth, skin, breast, uterus and many other sites. Indeed, the whole range of the common cancers was represented, except those of the digestive system. Oct. 31, 1936, of these 1,013 patients 536, or 53 per cent, were alive. Many of the others had died from cancer, but some from accidents and other diseases to which those of the cancer ages are prone. The chances of survival varied much from patient to patient, being greatest in the early cases, while in many of the advanced cases only palliation was possible.

EPITHELIOMA OF THE SKIN

In 1933, ninety-three cases of epithelioma of the skin were treated; 70 per cent of these patients were alive at the end of October 1936. Survival occurred in 80 per cent of the early cases but in only 16 per cent of the late cases. It is surprising that only fifty-six of the cases were early, as the disease could readily be seen by the patient in its earliest stages.

CANCER OF THE UTERUS

Cancer of the uterus is more difficult for the patient to detect in its early form, for its symptoms then closely resemble those of natural functioning. Of 113 cases only seven were very early and forty-six so early as to offer hope of permanent cure. In the remaining sixty-seven the disease had spread widely beyond the uterus into adjacent structures. Some 33 per cent of these 113 patients with uterine cancer in all stages were alive at the end of October 1936, and 48 per cent of the forty-six with cancer in reasonably early stages.

CANCER OF THE BREAST

Only ten of seventy-one patients had simply small lumps in the breast unaffacting other tissues and not spread to the glands. Of the early cases survival occurred in 70 per cent for three years, but only 20 per cent of those in which the glands were affected and not one of the late cases.

REACHING THE PATIENT

The importance of early treatment being so great, the problem is how to reach the patient early. If the patient lived in Manchester, he almost certainly would be sent directly to the institute or by way of one of the large general hospitals, but in the populous surrounding district there was greater difficulty. The institute therefore established radium clinics in the local hospitals. The patients received radium treatment at the clinics, which were not isolated radium centers but closely bound to the institute, by which treatment was frequently carried out and from which advice in times of difficulty was immediately available. Thus a coordinated system has been established which serves a population of more than two and one-half million.

Physical Training

There is a strong movement in this country for better physical training of the people. The government has issued a pamphlet containing proposals for the development and extension of the present facilities. They include the establishment of advisory councils, committees for the making of grants, subject to the approval of the responsible minister, the founding of a national college for physical training, and grants to the National Playing Fields Association and to the Central Council of Recreative

Physical Training. It is desired to create in the public mind a realization of the value of physical fitness for its own sake and to provide facilities sufficiently attractive to make an effective appeal to the people. The government has decided that any scheme must embrace the whole field of physical culture and therefore include arrangements for increasing the supply not only of gymnasiums but also of playing fields, swimming baths and other means of physical recreation. It is also recognized that many may desire opportunities for physical exercise and recreation not solely as such but as part of a fuller club or community life. The scheme will extend to combined provision of this character.

PARIS

(From Our Regular Correspondent)

March 5, 1937.

Public Health Budget Discussion in Parliament

In the discussion Dec. 14, 1936, of the budget of the ministry of public health, the first speaker said that the decrease in population was a vital question for France. It was the result not only of an apparent diminished natality but also of an increase in the mortality rate as compared to other European countries. In Germany there were 147 births and 112 deaths, in England 144 births and 120 deaths, per 10,000 inhabitants, as compared to 163 births and 158 deaths in France. Every effort must be made here to improve sanitary conditions and to prolong life. The second speaker, who represented the newly created government department of physical education, said that, by encouraging sports, much could be accomplished toward decreasing the mortality rate. It appears as though a middle of the road policy on the part of the government between obligatory physical education and free initiative would be preferable. The state should place all its resources at the disposal of private interests in the development of sports in France. The budget of the public health department has been greatly increased this year to permit it to encourage preventive medicine with the aid of the organized medical profession as represented by the syndicates and also to aid existing public and private agencies in their fight against disease. The problem of mental hygiene is a most important one, France being in first place as compared to other countries with respect to the number of insane, there having been an increase of 30 per cent during the past ten years. The minister of public health said that improved economic conditions would do more to increase the annual number of births than the present system of awarding money for large families. A decrease in the mortality rate would soon be followed by an annual increase in the number of inhabitants. This was shown by a glance at the English statistics, which reveal an annual increase of 130,000 inhabitants, as compared to 20,000 in France, although the number of births is equal in the two countries. Hence the fight against alcoholism, tuberculosis, syphilis, insanity and even rheumatism must be intensified.

One of the deputies, Mr. Cousin, objected to a recent (Sept. 26, 1936) decision of the ministry of public health that members of the staffs of public hospitals should not be allowed to accept fees directly from pay patients. He also objected to the order that a pay patient in public hospitals should be allowed to select his own physician, i. e., not be obliged to take a member of the staff as a medical attendant.

In the upper house the statement was made by one of the speakers that it had been hoped that the application of the social insurance law would result in a smaller number of free patients. This had not been found to be the case. After the foregoing discussion, the budget of the department of public health, amounting for 1937 to 1,700,000,000 francs (about \$85,000,000), was voted by both houses of parliament. This is an increase of 600 million francs over the 1936 budget.

Annual Meeting of French Federation of Medical Syndicates

In every department in France, the public relations of the profession are looked after by an association of physicians termed a syndicate. All the latter, eighty-six for France as a whole, are united in a central body, the *Confédération des syndicats médicaux français*, which has its headquarters in a recently purchased building in Paris. The annual meeting of this central organization was held Dec. 18-20, 1936, and presented a special interest because of the presence, as one of the speakers at the banquet, of Mr. Henri Sellier, minister of public health.

The most important subject for discussion at the annual meeting was the organization of preventive medicine. Should it be under the exclusive control of the state with medical officials, or under joint control of the state and the syndicates representing the organized profession or, finally, should the physicians act as individuals under the state? The minister of public health had at first planned to follow the first of these, but after the federation had pointed out that the second idea, i. e., joint action of organized medicine and of the state, was feasible, the minister had agreed to look into such a plan, which might be given a preliminary trial in four of five departments. No efforts to install measures of preventive medicine can be considered efficacious without paying more attention than is at present the case to the questions of alcoholism and inadequate housing conditions. The technical organization ought to be in the hands of the syndicates, or organized profession, according to the secretary's report at this annual meeting.

It is necessary to consider one of the following types of health centers:

1. A complete unit with both administrative and technical divisions in a single or adjacent buildings. In the technical portion would be placed examining rooms, laboratories and radiographic equipment.

2. An administrative unit only, the vaccinations and clinical examination being made at the physician's office.

3. A mixed unit or center including, in addition to administrative offices, some facilities for execution of the state's plan of physical education and encouragement of sports as well as rooms for special medical examinations.

The secretary, Dr. Cibré, was of the opinion that the first of these, i. e., a complete unit, could be employed only in large centers such as Paris or Lyons and hence the second or third units would probably have to be adopted for the majority of the departments.

In the discussion that followed this report, the point was made that periodic health examinations could be better carried out in physicians' offices. Another speaker declared that if the record of every examination must be subjected to the scrutiny of public health officials it would be impossible to guard professional secrecy in many cases. A representative of the radiologic syndicate believed that many patients would go to the health centers and that thus the already rapidly diminishing practice of radiologists would suffer.

Although the opinion of the majority of those who took part in the discussion was favorable to the cooperation of the medical profession and the public health authorities in organizing preventive medicine, preference was given for some plan by which such prophylaxis could be carried out in the offices of the members of the medical syndicates.

In the resolutions voted unanimously, after the reading of the secretary's report, the necessity of a collective contract between the syndicates and the state was emphasized. Such a contract should include the establishment of centers, preferably of the purely administrative type just referred to, the examinations to be made in the offices of the practitioner or specialist.

The next important question was that of hospital care. In France no "mixed" hospitals have existed until recently. Only

one attempt to combine the treatment of free and pay patients under one roof, so to speak, has been made, which will be referred to later. Those unable to pay for hospital care are sent to public hospitals, corresponding to city or county institutions in the United States. These are under the supervision here of the authorities of the respective departments or cities, the expenses of maintenance being paid out of the general taxes. The medical staffs of such hospitals are appointed after a severe competitive examination and hold their positions until they have reached the age of 62 years. In the case of professors, in the medical schools, this age limit is extended to 70 years, unless certain bills now before parliament become law. These "public hospitals" also receive those who are insured under the social insurance law, the expenses of hospital care being paid at an agreed (contract) rate of about \$2 a day by the insurance authorities. The medical staff, up to the present time, has not been allowed to receive any compensation for such "insured" patients.

In addition to the public hospitals treating those unable to pay and the social insurance patients, the only other institutions are those which receive only pay patients. Among these private hospitals (*maisons de santé*) a certain number have made a contract with the social insurance organizations, according to which the insured are cared for at the same rate the insured would have to pay in the public hospitals. It is evident that this lack of mixed or open hospitals in communities not large enough to support a strictly private institution has been keenly felt. If such a private hospital exists in any community, it ought not to have as a competitor the public hospital which receives pay patients.

The sentiment of the meeting was expressed in a motion to the effect that the establishment of wards and rooms for pay patients in public hospitals is permissible only after approval by the authorities and local medical syndicates where existing facilities for private hospital care are inadequate.

A third question discussed at this year's federation meeting was whether medical supervisors employed by the social or private insurance organizations and by railroad companies should be allowed to practice. A motion was passed asking that such a law be enacted, exception being made in the case of physicians who are called on to make examinations as court experts.

Results of Treatment of Dementia Paralytica

France, exclusive of its colonies, is divided for administrative purposes into eighty-six departments. The official representative of the central government (situated in Paris) in each department is the prefect. In the energetic antivenereal campaign which the present minister of public health is carrying on, every effort is being made to check, so far as possible, the source of contagion in the form of supervision of prostitutes by the public health officials instead of the police, as is at present the case. A bill will be introduced shortly in parliament to make such a change throughout France. In its circular of Dec. 10, 1936, the ministry of public health addressed to the prefects of all departments a request that they have a questionnaire filled out by superintendents of insane asylums and local antivenereal workers to ascertain whether the use of modern therapeutic measures such as arsenical and bismuth preparations, and of malaria therapy and the perfection of serologic diagnosis, has had any influence on the frequency of dementia paralytica in the respective departments. Information is also desired as to whether the clinical picture has been changed and how often the terminal stages of the disease are observed. The necessity for all those taking part in the antivenereal campaign to trace the number of those (wife and children) who have been infected by a syphilitic husband or father is also to be ascertained. Early recognition of such cases can now be more easily carried out since the antivenereal forces have been better organized by the ministry of public health.

BERLIN

(From Our Regular Correspondent)

March 1, 1937.

Extension of Insurance Against Occupational Diseases

National legislation with regard to occupational disease insurance has recently been substantially reinforced. Sufferers from the most common and dangerous occupational malady, pneumoconiosis, have heretofore received compensation only if the disease was acquired while the insured was employed in one of a certain specified list of occupations. Now disability allowance is granted all pneumoconiosis patients who have become ill while engaged in any insurable occupation. In the sphere of occupational skin diseases the insurance laws have likewise been considerably extended. Here too previous restrictions have been removed and a group of occupational diseases not heretofore covered by industrial insurance is now included within its framework.

It is interesting to note in this connection just which disorders are classed as occupational. A disease is recognized as occupational only if it was contracted by the insured in the course of actual industrial employment. Listed as occupational diseases are diseases originating from contact with lead, phosphorus, mercury, arsenic, manganese and their compounds, benzene and its homologues, nitrobenzene compounds and amino compounds of benzene or its homologues and their derivatives, halogen-hydrocarbons of the aliphatic series, carbon disulfide and hydrosulfuric acid. Excepted from the list are skin diseases that can be termed occupational only so far as they are manifestations of one of the general pathologic conditions caused by absorption of the noxious substances into the organism or if they are included in the following categories of skin diseases: skin diseases from contact with carbon monoxide, roentgen rays and radioactive substances; skin cancer or skin lesions that tend to become cancerous resulting from contact with soot, paraffin, tar, anthracene, pitch and similar substances; affliction with cancer or other neoplasms as well as changes in the mucosa of the urinary tract by aromatic amine; severe or repeatedly relapsing cases of skin disease that compel the worker to change his occupation or to give up gainful employment; disturbances of the musculature, bones and joints caused by working with compressed air tools; severe silicosis as well as silicosis in connection with pulmonary tuberculosis if the entire illness is severe and the pneumoconiotic alterations have caused the tuberculosis to assume an active progressive course, and, lastly, severe asbestosis. Accident insurance is made to cover all the foregoing diseases if the insured is gainfully employed in any recognized industry. The only other occupational diseases recognized as such are those acquired in especially designated industries: pulmonary cancer from the manufacture of chromates, for example, disturbances of the lower respiratory passages and the lungs from inhalation of ground basic slag in the mills or from the mixing, storage and transportation of such slag, malignant lymphosarcoma of the lungs present among workers in the ore mines of Schneeberg, Saxony; deafness or disturbance of the hearing bordering on deafness produced by noise in the metallurgic industries, gray cataract acquired in glass factories, ironworks and smelters; verminosis of mine workers, tropical diseases, typhus and scurvy acquired by persons engaged in maritime and aerial navigation or in business abroad; finally, infections contracted in hospitals and other institutions for the care of the sick as well as in the conduct of welfare service and health service and in diagnostic and experimental laboratories. If there exists for an insured worker the danger that continuance in his employment will mean the beginning, the recurrence or the exacerbation of an occupational disease, he will then be compelled to give up this occupation and will receive a certain compensation for the loss of his earnings. With regard to examination by the industrial physician in

charge, exact standards are prescribed in order to assure quick procedure. If a doctor establishes that an insured worker is suffering from a definite occupational disease or if the worker exhibits symptoms that would justify the suspicion of such a disease, an official report must be submitted at once. A physician may be punished for failing to report the result of his observations promptly.

Cancer and Race

Prof. Walther Fischer, pathologic anatomist of the University of Rostock, has reported the results of his own investigation of cancer and race before the medical society there. The approach to this problem is still difficult, as the mortality statistics in various countries are not worked up according to any uniform system. Moreover, Fischer adds, despite the fact that they emanate from official sources, the data are often wholly unreliable. The obduction material of the pathologic institute is accurate enough to be sure, but since the subjects all belong to a special group, namely, hospital patients, such statistics can scarcely represent a fair cross-section of the population. For a comparative study of the question, which embraces tropical countries, variations in the age of a given population must also be taken into account. Due consideration of all these criteria lead one to conclude that the data at present extant form no sound basis for any comparative evaluation. Within these limitations, then, one may hazard the following tentative conclusions:

The various European races present no manifest difference with regard to carcinoma. The Jewish population within the larger cities of Europe shows the same incidence of cancer and only occasionally differences with regard to the incidence of the localization. In the United States, according to Fischer's statistics, the incidence of cancer is the same among white women and Negroes, whereas the disease is 40 per cent less frequent among male Negroes than among white men. Among the Japanese and apparently among the Chinese as well, cancer is about as prevalent as among Europeans. Manifest differences in the most common seats of the cancer exist, however, among the yellow races, the Malays and the Negroes of South Africa. In the yellow race, primary carcinoma of the liver (with cirrhosis) is most frequently encountered. Among the Malays, cancer of the stomach is extremely rare. Sarcomas are much more common among members of the colored races than among white persons. Fischer believes that the differences observed in the incidence and location of cancer are to be attributed to environmental influences and not to hereditary factors.

AUSTRALIA

(From Our Regular Correspondent)

Feb. 10, 1937.

Imports of Dangerous Drugs

According to official figures the Australian consumption of cocaine is higher per head than that of any other English-speaking country. Australia's consumption of cocaine is now shown at 12.4 Kg. per million of population, compared with

Consumption of Morphine and Heroin per Million of Population

	Morphine	Heroin
Australia	13.9	3.31
Britain	13.85	1.18
Canada	11.84	2.13
United States	18.54	Negligible
New Zealand	11.60	1.99

5.29 in Britain, 4.89 in Canada, 6.82 in the United States and 7.12 in New Zealand. An increasing use of cocaine by dentists is shown. The consumption of morphine and heroin per million inhabitants is also high. The figures are given in the accompanying table. In Australia, heroin can be imported only through a government department, and the drug is then dis-

tributed to licensed importers. Control of the importation of all harmful drugs is vested in the commonwealth government, which issues licenses to approved importers; but the importers must secure a permit for each individual shipment of such drugs, with the exception of heroin. Further investigations are being made with a view of endeavoring to trace the reason for the wide variation in these figures.

The Moppett Test for Cancer

Working under the control of the Cancer Research Committee of the University of Sydney, Dr. Warnford Moppett has devised a blood test for the presence of cancer, details of which are given in the *Journal* of the Cancer Research Committee of the University of Sydney for May 1936. The originator claims that his test is 80 per cent correct for positive cases. D. A. Welsh, professor of pathology in the University of Sydney, considers that the test has a scientific significance, and he quotes the results of an independent series of positive tests, which were 92 per cent correct. The tests were made on patients having cancers in many different anatomic sites, many of the cancers being in an early stage and quite small. The test may be summarized thus: The blood to be tested and blood from a healthy control are placed in opposite ends of a special diffusion vessel, which is filled with physiologic solution of sodium chloride after the bloods have clotted. A fragment of mouse tumor (sarcoma) is placed on a glass plate, which is then inverted over the diffusion vessel so that the tumor fragment comes midway between the two blood clots. An initial reading (drawing) is taken of the periphery of the mouse tumor fragment. The diffusion vessel is then incubated at 37 C., and readings are taken at one hour and at twenty-four hours.

In a negative reaction there is a more or less symmetrical "outwandering" of cells from the sarcoma fragment. In a positive test for cancer there is a definite "sweeping" movement of the mouse sarcoma cells away from the cancerous patient's blood. Dr. Moppett has found that a minor degree of repulsion of the cells may be seen when the test blood is taken in some inflammatory conditions; but this was not read as a positive reaction for cancer.

Dr. Moppett has suggested some improvements on his original technic and has given the results of twenty-three tests, made on unknown bloods, in addition to the thirty tests published in his earlier paper. Of these twenty-three tests, eight gave a positive reaction for cancer; and of these eight positives five were correct and three were incorrect according to the biopsies. Admittedly that is a poor result, which shows that, even in the experienced hands of Dr. Moppett himself, the difficult technic is far from being reliable as yet. Nevertheless, both in its successes and in its failures, Dr. Moppett's test for cancer has raised questions of great scientific interest and promising practical value.

Dr. E. F. Thomson was commissioned by the Cancer Research Committee of the University of Sydney to make an independent investigation of the Moppett test for cancer. After preliminary tests made in conjunction with Dr. Moppett, Dr. Thomson undertook 100 additional tests, for the conduct and interpretation of which he was personally responsible. These experiments were carried out with great care and attention to detail; for example, three diffusion vessels were prepared for each test to eliminate accidental error. The results were unexpectedly good. Positive reactions for cancer were given by thirty-six test bloods, and thirty-three of these were taken from patients clinically cancerous, while only three came from patients clinically noncancerous. In twenty-five patients the clinical diagnosis was confirmed by biopsy; in seven patients a biopsy was omitted but the clinical diagnosis was regarded as obvious. It is important to note that these thirty-three cor-

rect positive tests for cancer were given by patients in comparatively early stages of cancer, before anemia or wasting had become apparent. The three incorrect positive tests for cancer are discussed at length, and there is evidence that all three patients had probably developed cancer at some time. As this type of success and of failure is the critical test in serologic diagnosis, these results are encouraging.

The available evidence warrants further critical examination of the test, including the question whether the mouse sarcoma (tumor S37 of the Imperial Cancer Research Fund) is the best indicator.

BELGIUM

(From Our Regular Correspondent)

Feb. 12, 1937.

International Congress on the Campaign Against Cancer

The second International Congress on the Scientific and Social Campaign Against Cancer, which represented a real landmark in the fight against cancer, was held at Brussels. The king honored the opening ceremonies by his presence, thus once more attesting his personal interest in the progress of medical science. More than 500 physicians representing forty-three countries met in the great hall of the Palais des académies. After the roll call of delegates present had been broadcast in six different languages, Dr. Lerat spoke from the chair. In a speech filled with lofty sentiments he pointed out that scientists the world over are bound together in a common determination to combat cancer. The search for the basic causes of cancer is the central problem about which all other problems gravitate. The chairman ended his address with the following peroration: "Since cancer is to be combated by scientific means, I for one wish that Science, the daughter of Peace, would no longer be compelled to serve the purposes of that other destructive force and slayer of men. May peace on earth to men of good will shine forth like a rainbow's arc signaling the end of international tempests and assure to the scientist that tranquillity so requisite for the creative endeavor and the discovery of truth."

The second speaker was Emile Vandervelde, minister of public health, who described Belgium's rôle in the anticancer campaign. Cancer research centers and clinics, all provided with the most modern equipment, have been established by the four Belgian universities. The practicing physician and the visiting nurse have delicate and frequently ungrateful but indispensable services to perform in connection with the organized campaign. There is great need for a campaign of public education to counteract the erroneous popular ideas with regard to the mysterious nature of cancer. The physician too should be taught to renounce his personal interests in order to collaborate in this common cause. In a peroration in keeping with his great forensic talent, Vandervelde said: "We are witnessing, alas, a worldwide speeding up of the armaments race, a situation charged with incredible menace. But this congress loudly proclaims the fact that, fostered by mutual example, there is developing a race in the scientific armament that points toward peace as surely as that other race points toward war. In the words of Duhamel, there is an international language, the language of suffering; and one may hope that the day is at hand wherein the prophecy of Pasteur shall be verified: science and peace shall one day triumph over ignorance and war."

Every aspect of our present knowledge of cancer was touched on in the course of the various sessions. Only the more noteworthy discussions are here summarized.

CHEMICAL COMPOUNDS AS CANCERIGENIC AGENTS

E. L. Kennaway, J. W. Cook, G. A. D. Haslewood, C. L. Hewett, I. Hieger and W. V. Mayneord of London classified

for the South Boston health unit; for many years medical supervisor of the parochial schools of Boston; formerly on the staff of St. Margaret's Hospital; aged 59; died, February 11, of bronchopneumonia.

Benjamin Baker Moeur, Tempe, Ariz.; Arkansas Industrial University Medical Department, 1896; governor of Arizona, 1933-1937; member of the Constitutional Convention of Arizona in 1910; president of the Arizona State Board of Health, 1933-1937; for twelve years secretary of the board of education of the Arizona State Teachers College; aged 67; died, March 16, of coronary occlusion.

Charles Rufus Skinner, Hudson, N. Y.; University of Vermont College of Medicine, Burlington, 1899; secretary of the Columbia County Medical Society for ten years; deputy health commissioner of Columbia County; school physician; aged 65; formerly on the staff of the Hudson City Hospital, where he died, January 1, of lobar pneumonia and mitral insufficiency.

James Benjamin Dougherty, Canton, Ohio; Ohio Medical University, Columbus, 1903; member of the Associated Anesthetists of the United States and Canada; past president of the Stark County Medical Society; served during the World War; on the staff of the Aultman Hospital; aged 57; died, January 22, in Naples, Fla., of coronary thrombosis.

William Merritt Conant, Boston; Harvard University Medical School, Boston, 1884; fellow and a founder of the American College of Surgeons; member of the Massachusetts Medical Society and the American Association of Anatomists; honorary consulting surgeon to the Massachusetts General Hospital; aged 81; died suddenly, February 18.

Lloyd P. Warren Sr., Wichita, Kan.; Beaumont Hospital Medical College, St. Louis, 1900; fellow of the American College of Surgeons; on the staff of the Wichita Hospital; an associate editor and formerly editor of the *Medical Bulletin*, official publication of the Sedgwick County Medical Society; aged 66; died, January 17, of carcinoma.

Thor Christian Rothstein, Chicago; Karolinska Mediko-Kirurgiska Institutet, Stockholm, Sweden, 1897; professor emeritus of neurology, Rush Medical College; aged 72; on the consulting staff of the Augustana Hospital and on the staff of the Presbyterian Hospital, where he died, February 19, of arteriosclerosis and coronary thrombosis.

Joseph William Scannell, Lewiston, Maine; University of Maryland School of Medicine, Baltimore, 1906; member of the Maine Medical Association; formerly fire commissioner; on the staff of the Central Maine General Hospital; chairman of the cancer committee of the Maine Medical Association; aged 53; died, January 16, of heart disease.

John Alexander Houston, Northampton, Mass.; Medical School of Maine, Portland, 1880; member of the Massachusetts Medical Society, the American Psychiatric Association and the New England Society of Psychiatry; for many years superintendent of the Northampton State Hospital; aged 77; died, January 18, of coronary thrombosis.

Howard Jay Teller, Rome, N. Y.; Baltimore University School of Medicine, 1898; past president of the Oneida County Medical Society; formerly county coroner, alderman and county physician; on the staff of the Rome Hospital and Murphy Memorial Hospital; aged 61; died, January 28, of coronary thrombosis.

Ira Jackson Tatum, Union City, Tenn.; University of Tennessee Medical Department, Nashville, 1900; served during the World War; formerly connected with the U. S. Veterans Bureau; aged 71; on the staff of the Edwin W. Cocke Sanatorium, Memphis, where he died, January 4, of coronary occlusion.

Harry Hubbard Brookhart, Columbus, Kan.; Marion-Sims College of Medicine, St. Louis, 1895; president of the Cherokee County Medical Society; served during the World War; on the staff of the Maude Norton Memorial City Hospital; aged 64; was killed, January 29, in an automobile accident.

Emory William Reisinger, Fairfax, Va.; Georgetown University School of Medicine, Washington, D. C., 1893; member of the faculty at his alma mater, 1895-1917, when he resigned as assistant professor of anatomy; aged 65; died, January 20, in Staunton of mitral regurgitation and bronchopneumonia.

Alpheus Freeman, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882; member of the Medical Society of the State of New York; for many years on the staff of the Presbyterian Hospital; aged 77; died, January 25, in a local hospital.

Charles Hunt, Clinton, Ky.; University of Nashville (Tenn.) Medical Department, 1900; member of the Kentucky State Medical Association; served during the World War; county health officer; bank president; aged 62; died, January 24, in the Illinois Central Hospital, Paducah.

Halvor Holte, Crookston, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; member of the Minnesota State Medical Association; fellow of the American College of Surgeons; aged 79; died, January 2, in the Bethesda Hospital, of pneumonia.

Samuel James Blanchflower Collins, Whiteville, N. C.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1913; L.R.C.P. Edinburgh, 1930; L.R.C.S. Edinburgh, and L.R.F.P.S. Glasgow, 1930; aged 62; died, January 20, in a hospital at Durham, of angina pectoris.

Hugh J. Coll, Connellsville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of the State of Pennsylvania; aged 67; on the staff of the Connellsville State Hospital, where he died, January 27, of cerebral thrombosis.

Frederick Erastus Hamlin, Brooklyn; University of the City of New York Medical Department, 1893; member of the Medical Society of the State of New York; for many years an examining physician for the Prudential Life Insurance Company; aged 71; died, January 29.

George B. M. Free, York, Pa.; University of Maryland School of Medicine, Baltimore, 1883; University of Pennsylvania Department of Medicine, Philadelphia, 1884; formerly on the staff of the Danville (Pa.) State Hospital; aged 75; died, January 16, of pneumonia.

Alpheus Luther Pollard, Sedalia, Mo.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; member of the Missouri State Medical Association; formerly city physician; aged 81; died, January 2, of essential hypertension and hemiplegia.

Spencer S. Wade, Morgantown, W. Va.; Jefferson Medical College of Philadelphia, 1884; member and past president of the West Virginia State Medical Association; for many years a member of the board of education; aged 79; died, January 22, of internal hemorrhage.

Myron Henry Davis, Saugus, Mass.; Harvard University Medical School, Boston, 1885; health officer of Saugus; school physician; on the staff of the Lynn (Mass.) Hospital; aged 74; died, January 21, of bronchopneumonia, arteriosclerosis and chronic myocarditis.

Phau Rivers Outlaw, El Paso, Texas; Bellevue Hospital Medical College, New York, 1893; member of the State Medical Association of Texas; served during the World War; formerly health officer of El Paso; aged 67; died, January 12, of pulmonary tuberculosis.

Leland Grant Hewitt, Northwood, Iowa; Rush Medical College, Chicago, 1892; member of the Iowa State Medical Society; past president of the Worth County Medical Society; for many years county coroner; aged 70; died, January 31, of pulmonary abscess.

Andrew J. Minaker, San Francisco; Hahnemann Hospital College of San Francisco, 1899; College of Physicians and Surgeons of San Francisco, 1902; served during the World War; aged 60; died, January 16, in the Franklin Hospital, of bronchopneumonia.

George Kirby Sims, Bolivar, Mo.; Northwestern University Medical School, Chicago, 1922; secretary of the Dallas-Hickory-Polk Counties Medical Society; aged 56; died, January 24, in St. John's Hospital, Joplin, of meningitis and lobar pneumonia.

Erskine Marshall Barnes, Lincoln, Neb.; Lincoln Medical College of Cotner University, Lincoln, 1903; veteran of the Spanish-American and World wars; on the staff of the Veterans Administration Facility; aged 60; died, January 4, of coronary thrombosis.

Charles Sumner Neer, Vinita, Okla.; St. Louis University School of Medicine, 1906; formerly part owner of the Vinita Hospital; aged 57; died, January 22, in St. Anthony's Hospital, Oklahoma City, following an operation for gastric ulcer.

Forest Clyde Van Hook, Mount Pulaski, Ill.; Northwestern University Medical School, Chicago, 1913; for several years a member and president of the board of education; aged 49; died, January 29, in Tucson, Ariz., of diabetes mellitus.

Robert Anderson Taylor, Topeka, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1906; served during the World War; aged 55; on the staff of the Christ's Hospital, where he died, January 31, of pneumonia.

Evan Jones Smith Ⓢ Irvington, N. Y.; University of Buffalo School of Medicine, 1895; medical officer of the school district; on the staff of the Dobbs Ferry (N. Y.) Hospital; aged 70; died, February 12, of carcinoma of the sigmoid.

Harry Edwin Burdick Ⓢ David City, Neb.; Omaha Medical College, 1899; fellow of the American College of Surgeons; served during the World War; co-founder of the David City Hospital; aged 59; died, January 12, of lobar pneumonia.

Jay Logan Magill, Holdrege, Neb.; University Medical College of Kansas City, Mo., 1900; member of the Nebraska State Medical Association; aged 58; died, January 23, at the Holdrege Hospital, of bronchopneumonia and influenza.

Addison Morgan, Fall Brook, Calif.; University of Michigan Homeopathic Medical School, Ann Arbor, 1881; formerly coroner of San Diego County; veteran of the Spanish-American War; aged 78; died, January 8, of chronic myocarditis.

Colin McFarquhar Reed Ⓢ Youngstown, Ohio; University of Pittsburgh School of Medicine, 1915; served during the World War; aged 49; died, January 23, in the North Side Unit of the Youngstown Hospital, of intestinal obstruction.

John Thames Ⓢ Charleston, W. Va.; Louisville (Ky.) Medical College, 1894; served during the World War; county health officer; formerly health officer of Little Rock; aged 65; died, January 11, of arteriosclerotic heart disease.

Charles Weber, Cincinnati; Cincinnati College of Medicine and Surgery, 1881; aged 79; died, January 28, in the Good Samaritan Hospital from the effects of carbon monoxide poisoning caused by a defective furnace in his home.

Morton Earl Fox, Uncasville, Conn.; Long Island College Hospital, Brooklyn, 1893; member of the Connecticut State Medical Society; health officer of Montville; aged 66; died, January 2, of bronchopneumonia and anemia.

Isaiah Alpheus Boyd, Washington, D. C.; Meharry Medical College, Nashville, Tenn., 1890; Howard University College of Medicine, Washington, D. C., 1891; aged 71; died, January 23, in the Freedmen's Hospital, of pneumonia.

Bernard Joseph Wess, Baltimore; Baltimore Medical College, 1905; member of the Medical and Chirurgical Faculty of Maryland; aged 54; on the staff of St. Joseph's Hospital, where he died, January 9, of coronary thrombosis.

Frank Estil Casburn, Holly, Colo.; University of Kansas School of Medicine, Kansas City, 1906; member of the Colorado State Medical Society; aged 57; died, January 29, in Lamar, of hypertension, myocarditis and nephritis.

Joseph Griffin Waldrop, Hot Springs National Park, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; member of the Arkansas Medical Society; aged 62; died, January 17, of cerebral hemorrhage and hypertension.

Thomas Quincy Ray, Andalusia, Ala.; Atlanta (Ga.) Medical College, 1895; member of the Medical Association of the State of Alabama; aged 71; died suddenly, January 3, of cerebral hemorrhage and hypertension.

Horace Snoad Cooper, Denver; Denver College of Medicine, 1900; member of the Colorado State Medical Society; served during the World War; aged 66; died in January, at St. Luke's Hospital, of pneumonia.

Edwin Henry Harvey Ⓢ Atlantic City, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 67; died, February 22, in the Pennsylvania Hospital, Philadelphia, of cerebral hemorrhage.

Bryant Smith, Oconomowoc, Wis.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; aged 71; died, January 7, in Milwaukee, of rupture of the aorta and arteriosclerosis.

Howard Mendenhall Buck, Boston; Harvard University Medical School, Boston, 1882; member of the Massachusetts Medical Society; aged 80; died, January 11, of bronchopneumonia and cerebral thrombosis.

Arthur Conant Poe, Cleveland; Long Island College Hospital, Brooklyn, 1885; a medical examiner for the Metropolitan Life Insurance Company for many years; aged 72; died, January 22, of cerebral sclerosis.

Thomas Nicholas Burke, Elkhorn, Neb.; John A. Creighton Medical College, Omaha, 1904; for many years a member of the village board and school board; aged 61; died, January 5, of carcinoma of the cecum.

Joseph Henderson Coffee, Arcadia, Fla.; Atlanta College of Physicians and Surgeons, 1910; formerly member of the state legislature; aged 58; died, January 25, in a local hospital, of influenza and pneumonia.

Norman H. Haviland, Fulton, N. Y.; Eclectic Medical College of Pennsylvania, Philadelphia, 1872; Homeopathic Hospital College, Cleveland, 1873; aged 92; died, February 13, of carcinoma of the prostate.

Edward Williamson Perkins, Petersburg, Va.; University of the South Medical Department, Seawane, Tenn., 1903; member of the Medical Society of Virginia; aged 59; died, January 23, of heart disease.

Edward Otis Parker Ⓢ Pendleton, Ore.; Willamette University Medical Department, Salem, 1903; formerly physician in the Indian Service; aged 64; died, January 21, of coronary occlusion and sclerosis.

William K. Shedd, Columbia, Tenn.; University of Tennessee Medical Department, Nashville, 1887; formerly secretary of the Maury County Medical Society; aged 78; died, January 8, of hemiplegia.

William Smith Crosby, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1900; aged 59; died, January 15, in the Philadelphia General Hospital, of cirrhosis of the liver.

Joseph Aloysius Ball, Los Angeles; John A. Creighton Medical College, Omaha, 1898; formerly a practitioner in Stuart, Iowa, and Council Bluffs, Iowa; aged 64; died, January 22, of pneumonia.

David William Rosen, Boston; Tufts College Medical School, Boston, 1910; member of the Massachusetts Medical Society; aged 57; died, January 3, in the Beth Israel Hospital, of hypertension.

Ernest Dalton Richmond, Reading, Mass.; University of Vermont College of Medicine, Burlington, 1894; member of the Massachusetts Medical Society; aged 67; died, January 4, of heart disease.

Robert Hamilton Folk, Belton, S. C.; University of Maryland School of Medicine, Baltimore, 1916; served during the World War; aged 48; died, January 17, of bronchopneumonia and myocarditis.

Hiram S. Jones, Carroll, Ohio; University of Wooster Medical Department, Cleveland, 1879; aged 87; died, January 2, in the McMillen Sanitarium, Columbus, of pneumonia and arteriosclerosis.

Adelbert DeRoy Haines, Rochester, N. Y.; Eclectic Medical Institute, Cincinnati, 1884; aged 76; died, January 21, in the Highsmith Hospital, Fayetteville, N. C., of myocarditis and prostatectomy.

S. Claude Andrus Ⓢ Rockford, Ill.; Northwestern University Medical School, Chicago, 1897; aged 64; formerly on the staff of the Rockford Hospital, where he died, January 12, of pneumonia.

Ephraim W. Ellis, Dunbarton, S. C.; University of Georgia Medical Department, Augusta, 1891; aged 74; died, January 3, in Augusta, Ga., of hypertrophy of the prostate and bronchopneumonia.

Estella Clark Carpenter, Chicago; Jenner Medical College, Chicago, 1903; member of the Illinois State Medical Society; aged 69; died, January 26, of carcinoma of the intestine and lung.

James E. Cunningham, Chicago; Northwestern University Medical School, Chicago, 1896; aged 48; died, January 27, in the Veterans Administration Facility, Hines, Ill., of coronary occlusion.

Thomas W. Wilkinson, San Antonio, Texas (licensed in Texas, under the Act of 1907); formerly a medical missionary; aged 67; died, January 8, of coronary thrombosis and arteriosclerosis.

Philip Wolfman, New Brunswick, N. J.; Albany (N. Y.) Medical College, 1903; aged 64; died, January 3, in the General Hospital, Perth Amboy, of cerebral thrombosis and diabetes mellitus.

Henry Bradford Babbitt, Brockton, Mass.; Boston University School of Medicine, 1888; aged 71; died, Dec. 20, 1936, in Foxboro, of Adams-Stokes' syndrome and cerebral arteriosclerosis.

Mora Simeon Bulla, Elizabeth City, N. C.; Miami Medical College, Cincinnati, 1905; on the staff of the Albemarle Hospital; aged 55; died, January 28, of hemiplegia and hypertension.

James Dallas Liles, Vanceburg, Ky.; University of Louisville Medical Department, 1905; member of the Kentucky State Medical Association; aged 55; was found dead, January 16.

Leonard Erhard Bartz Ⓢ Windsor, Colo.; Denver College of Physicians and Surgeons, 1903; owner of the Bartz Memorial Hospital; aged 63; died, January 18, of angina pectoris.

James Franklin Davies, Callaway, Neb.; Omaha Medical College, 1893; member of the Nebraska State Medical Association; aged 66; died, January 3, of coronary occlusion.

Josiah Green Smith, Port Arthur, Texas; Louisville (Ky.) Medical College, 1888; member of the State Medical Association of Texas; aged 80; died, January 3, of erysipelas.

Elias John Helgesen, Evansville, Wis.; College of Physicians and Surgeons, Keokuk, Iowa, 1893; aged 70; died, January 22, of uremia, nephritis and heart disease.

Hugh Hagan Lenahan, New Hartford, N. Y.; Syracuse University College of Medicine, 1903; aged 58; died, January 17, of lobar pneumonia and chronic nephritis.

John Alfred Freeze, Bunker Hill, Ind.; Hospital College of Medicine, Louisville, Ky., 1897; aged 69; died, January 6, of carcinoma of the prostate and myocarditis.

John Jackson Johnson, Calhoun, Ga.; Emory University School of Medicine, Atlanta, 1932; aged 29; died, January 9, of injuries received in an automobile accident.

Herbert B. Wright, Skaneateles, N. Y.; Syracuse University College of Medicine, 1881; aged 85; died, January 13, of cerebral hemorrhage and arteriosclerosis.

Robert Algie ♂ **Clay Center**, Kan.; Barnes Medical College, St. Louis, 1899; served during the World War; aged 60; died, January 25, of splenomyelogenous leukemia.

Sarah Gaston Frack, Niles, Ohio; Cleveland University of Medicine and Surgery, 1895; aged 67; died, January 31, in Los Angeles, of a cerebral hemorrhage.

George Edward Norton ♂ **Cambridge**, Mass.; University of Vermont College of Medicine, Burlington, 1899; aged 72; died, January 6, of cardiorenal disease.

Harvey Edmund Colvin, Burlington, Vt.; Chicago Homeopathic Medical College, 1880; aged 82; died, January 10, of chronic myocarditis and nephritis.

John Volmer, Wichita, Kan.; University of Arkansas School of Medicine, Little Rock, 1913; aged 59; died, January 15, of cerebral hemorrhage.

Albert Lincoln Winslow, Danville, Va.; Leonard Medical School, Raleigh, N. C., 1893; aged 70; died, January 13, of progressive muscular atrophy.

Sadie Monahan, Dayton, Ohio; Laura Memorial Woman's Medical College, Cincinnati, 1896; aged 78; died, January 29, of cerebral hemorrhage.

Clyde D. Schurtz ♂ **Alexandria**, Ind.; Rush Medical College, Chicago, 1885; aged 77; died, January 27, in St. John's Hospital, Anderson.

Harry Lovejoy Coleman ♂ **Farragut**, Iowa; Rush Medical College, Chicago, 1891; aged 70; died suddenly, January 23, of angina pectoris.

Millard Fillmore Funk, Mowrystown, Ohio; Eclectic Medical Institute, Cincinnati, 1884; aged 82; died, January 27, of Addison's disease.

Kate Z. Horner Jacobson, Sioux City, Iowa; Sioux City College of Medicine, 1896; aged 68; died, January 6, of bilateral lobar pneumonia.

Wallace C. Quinn, Brockway, Pa.; College of Physicians and Surgeons, Baltimore, 1884; aged 76; died, January 25, of heart disease.

Edmon Arthur Gilson, San Antonio, Texas; Toledo Medical College, 1905; aged 64; died, January 23, of coronary thrombosis.

William H. Dempsey ♂ **Alton**, Ill.; Missouri Medical College, St. Louis, 1898; aged 65; died, January 29, of bronchopneumonia.

George Whitefield Hopkins, Cleveland; Cleveland Medical College, 1896; aged 64; died, January 19, of chronic interstitial nephritis.

John Fahrner Sr., Joliet, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1882; aged 82; died, Dec. 29, 1936.

Israel Goldwin Smith, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1896; died, Dec. 25, 1936.

Edward J. Taggart ♂ **Bremerton**, Wash.; Omaha Medical College, 1888; aged 73; died, January 16, of pneumonia.

Elizar Kent Bailey, Ogallala, Neb.; Chicago Medical College, 1877; also a minister; aged 88; died, January 11.

Albert James Tilton, Brooklyn; College of Physicians and Surgeons of Chicago, 1890; aged 73; died, January 7.

Cicars Camp, Patmos, Ark. (licensed in Arkansas in 1903); aged 60; died, January 28.

Bureau of Investigation

J. R. BRINKLEY AND HIS FORMULA NO. 1020

At various times there arises in the history of quackery some extraordinary individual before whose accomplishments all previous charlatans fade into insignificance. In the history of quackery, the names of Elisha Perkins, Zeileis, Asuero, Abrams, Brinkley and Baker loom large. Many of those named have gone to the quack's ultimate reward, proving at the same time in some instances that the wage of sin is not only death. The career of John R. Brinkley is not yet ended. From the time when he first appeared on the American scene, through the period of his residences in New York and Kansas, and to that of his present domicile in Texas, he has stood out in bold relief even among such fascinating competition as the world now affords. The latest development in his career is the promotion of formula No. 1020. This concoction, it seems, is given to patients who have previously submitted themselves to the personal ministrations of J. R. Brinkley and who are willing to spend sums like \$100 for six ampules of the new remedy, in order that they may be still further benefited by his extraordinary talents.

Various physicians have submitted to the Chemical Laboratory of the American Medical Association ampules labeled:

"20 c. c. plus

Formula No. 1020

Prepared especially for

J. R. Brinkley, M.D.

Del Rio, Texas"

Thus a Mississippi physician writes:

"A few days past I wrote to you relative to the Dr. Brinkley operation and treatment . . . This morning a man came in to see me with a box of ampules, requesting that I give him two per day intravenously. He had been to Dr. Brinkley but failed to remain until the treatment was completed. I am sending you one of these ampules for analysis. The container states that it is made by Val Verde Co. of Del Rio, Texas, for Dr. Brinkley. I have refused to administer the same unless the formula is furnished."

A Nashville, Tenn., physician states:

"We are mailing you under separate cover an ampule of liquid which John R. Brinkley of Del Rio, Texas, sells to patients at the rate of six ampules for \$100. They are given intravenously. We are interested to know what the chemical analysis shows to be its contents. Any information you can furnish us will be appreciated."

From Wyoming a physician inquires:

"I am mailing you under separate cover an ampule of medicine used by Dr. J. R. Brinkley. I have had several requests by some of my patients to administer it to them, intravenously, and before doing so would like to know what this ampule contains . . ."

From a Wisconsin physician:

"Under separate cover I am sending by first class mail the ampule sent by Brinkley. Any information you can give me regarding its contents will be appreciated."

The laboratory submits the following report:

LABORATORY REPORT

"The physical appearance of each ampule resembled the others, though the sources were different. Each ampule contained about 20 cc. of a clear solution having a sky blue color, odorless, and practically tasteless. The density of the liquid was 0.9985 at 25 degrees. This is practically the same as that of water at 25 degrees (0.9971). On evaporating the solution there remained a very small residue, bluish in color, amounting to 0.004 per cent and in terms of sulfated ash was 0.003 per cent. Spectrographic analysis indicated the presence in extremely small amounts of such metallic constituents as silicon, zinc, magnesium, iron, copper, sodium and calcium. Macro- and micro-chemical investigation indicated that the organic blue material was a dye of the indigo type containing a very small amount of zinc. Synthetic solutions containing indigo dyes were prepared, based on the foregoing information. Each contained 0.001 Gm. of the dye to 100 cc. of distilled water. The

colors were matched with each other and found to correspond in shade and hue to that of the Brinkley ampules. Photospectrographic examinations (absorption spectra) corroborated the chemical analysis suggesting the presence of the indigo dye.

"From the foregoing it is concluded that a solution having essentially the same characteristics as that labeled 'Formula No. 1020, J. R. Brinkley, M.D.' may be prepared by dissolving one part of indigo in 100,000 parts of water. Such a solution is essentially water to which has been added a dash of blue dye."

The kind of genius capable of taking a body of water like Lake Erie, coloring it with a dash of bluing and then selling the stuff at \$100 for six ampules represents a type which all the world up to now has never been able to equal. John R. Brinkley is the absolute apotheosis in his field. Centuries to come may never produce again such blatancy, such fertility of imagination or such ego.

Correspondence

"THE PROBLEM OF SCHOOL MEDICAL AND DENTAL SERVICE"

To the Editor:—The importance of Dean Smiley's article (THE JOURNAL, February 6) on "The Problem of School Medical and Dental Service" cannot be overestimated. It is properly stated that the school is the child's second home. A considerable portion of childhood is spent in the school. The necessity of keeping children well during this period is readily realized. As health director of the city schools of Albany for five years, I have had first hand information not only of local but also of state school health organizations. Each state has its own rules, regulations and laws. Some are more involved than others. Some are affiliated with the education department. Still others are associated with the state and local health bureaus. It is difficult to determine which is more efficient. As far as school health being directed by education authorities, as in New York State, is concerned, there is one thing that I particularly noted; that is, the complete dissociation of the various bureaus dealing with child health. For example, in the New York State department of education there are eight such bureaus. They are as follows: health teaching, physically handicapped, mentally handicapped (research), rehabilitation, physical education, medical inspection, medical examiners and dental examiners. The first five of these are supervised by teachers, the next two by physicians, and the last by a dentist. The confusion that not infrequently results may be realized when it is noted that at times the physical educator in charge of his department would be superior to the doctors and nurses in the medical inspection bureau. To a lesser extent health activities are supervised in other education bureaus.

My experience has shown me that every bureau is a separate and distinct entity. The bureau of medical inspection is most properly named in that the school physician seems to be employed particularly to inspect or examine the pupils. The other health duties mostly are relegated to the various bureaus mentioned.

The solution to the problem may not be too difficult. Two remedies I believe could be applied: 1. A physician should be in charge and directly responsible for the pupil's health in school, the same as it is in the home. 2. There should be an amalgamation and coordination of all education bureaus dealing in health. We know that we have those in our profession qualified in education as well as in medicine. There are two of our larger universities that have physicians as presidents. Many other medical men are prominent educators. One of these could capably direct and coordinate all the health bureaus so that there would be the greatest efficiency and at the same time unquestionably better economy. Simply to take the bureau of medical inspection from the department of education and place it in the

department of health would be to no avail, unless all the other health branches of education would be similarly transferred. This might present many difficulties. The plan mentioned would be more practical. This is in accord with the frequently expressed opinions of the American School Physicians Association, as mentioned in its journal.

In each state, departments of health and education, in conjunction with the state medical society, could undoubtedly evolve the most practical formula. The best results could thereby be obtained, whichever of Dean Smiley's plans would be acceptable, whether the school physician or, as he prefers, the private physician would have more contact with the pupil.

WILLIAM L. GOULD, M.D., Albany, N. Y.

HYPERSENSITIVITY TO ACETYL-SALICYLIC ACID

To the Editor:—In the February 6 issue of THE JOURNAL appears an article entitled "Hypersensitivity to Acetylsalicylic Acid (Aspirin)" in which the authors deprecate the use of aspirin in allergic conditions. They list (p. 446) ten conditions of an allergic nature which follow the ingestion of aspirin and make the statement "No more convincing argument against the use of acetylsalicylic acid as a remedy for asthma is needed except to point out . . . the cases of death resulting from its use by asthmatic patients." In THE JOURNAL, Nov. 21, 1936, page 1717, appears an article entitled "The Therapy of (Horse) Serum Reactions." Dr. Fantus recommends (p. 1719) the use of acetylsalicylic acid (a 0.3 Gm. capsule every two or four hours as required) as a remedy for the pruritus accompanying a serum reaction. I take it that the point of view of the two authors is rather diametrically opposite. It seems to me to be a point of some practical importance that some reconciliation be effected between these two divergent therapeutic thoughts.

ROY E. REED, M.D., New York.

[This letter was referred to Dr. Prickman, who replies:]

To the Editor:—In our paper "Hypersensitivity to Acetylsalicylic Acid (Aspirin)," Dr. Buchstein and I point out the serious reactions that occasionally occur following the ingestion of acetylsalicylic acid. We are aware that this remedy has been used by many allergic individuals without ill effects; one of our patients in fact estimated that he took 4,000 tablets (5 grains each) of acetylsalicylic acid a year for his asthma without encountering any trouble. However, it seemed to us very significant that sixty-one of the sixty-two individuals found sensitive to this drug had other allergic manifestations themselves or were from definitely allergic families. Nine additional patients hypersensitive to acetylsalicylic acid have been encountered since completing the study, and these also had other evidence of major allergy without exception. Since we found the reactions to acetylsalicylic acid very severe, at times even grave, and since we believe the incidence of sensitivity to acetylsalicylic acid to be greater than is ordinarily supposed, and since we have shown the persons who need to be especially cautious in using acetylsalicylic acid are those who have other allergy or come of allergic families, we believe that our conclusions are not unwarranted.

LOUIS E. PRICKMAN, M.D., Rochester, Minn.

[The letter was referred also to Dr. Fantus, who writes:]

To the Editor:—The fact is that dermatologists find acetylsalicylic acid in the form of 0.3 Gm. capsules their most efficient remedy against several varieties of pruritus, including that of urticaria, and this in spite of the fact that urticaria is one of the untoward effects of acetylsalicylic acid. Ill results from this treatment have not been brought to attention.

BERNARD FANTUS, M.D., Chicago.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SNORING

To the Editor:—Will you be good enough to discuss the subject of snoring, especially as to etiology and treatment, preferably in "Queries and Minor Notes" or by direct correspondence? This subject must be of general interest since not a few patients have consulted me concerning it—but nowhere can I find any discussion of it.

H. J. HARRIS, M.D., Westport-on-Lake Champlain, N. Y.

ANSWER.—Snoring or unusual noises accompanying inspiration or expiration or both in deep sleep, in coma or in deep anesthesia involve several factors. The actual noises are made by intermittent passage of the air at regions of partial obstruction to the passage of the air. The factors that lead to such partial obstruction may be:

1. Partial obstruction of the glottis by approximation of the vocal cords owing to the extreme relaxation of the muscles governing the vocal cords.
2. The falling backward of the tongue, particularly when the person in deep coma or under anesthesia lies on his back.
3. Relaxation of the muscles governing the position of the soft palate, so that this structure falls against the roof of the pharynx or the hard palate. This would tend to interfere with the passage of the air through the nose in expiration if the person lies on his back.
4. Presence of mucus in the nasal passages.
5. Possible abnormal tonus both in the muscles of the pharynx as well as in the muscles of the soft palate.

The common explanation of snoring is that it is due to vibration of the relaxed soft palate. This explanation is probably inadequate, particularly as to the etiology of the snoring noises that may accompany expiration, because if the soft palate is completely relaxed and the person lies on his back it is more than likely to close the passage through the nose and not vibrate at all but merely force the air through the lips. If the lips are moderately closed, noises will be produced during the act of expiration.

One can voluntarily produce snoring noises during the waking state during deep inspiration with a partly closed glottis, intermittent passage of the air through the obstructed glottis producing the noise. One can similarly in a waking state produce snoring noises by voluntarily closing the pharynx from the nose by means of the soft palate and in expiration forcing the air through moderately tightened lips.

Snoring is an annoyance to other people rather than to the snorer. Rarely does snoring disturb the soundness of sleep of the snorer himself. It is not even classed as a functional pathologic condition. Snoring is less liable to occur if the person goes to sleep and stays asleep on either side or on the abdomen. A thorough clearing of the nasal passages before going to sleep also may aid.

KÜMMELL'S DISEASE OF SPINE

To the Editor:—Would you please give me information concerning Kümmell's disease or the so-called nucleus pulposus of the spine?

J. F. MALLOY, M.D., Mitchell, S. D.

ANSWER.—The inquirer evidently thinks that Kümmell's disease and nucleus lesions are synonymous: they are not. The reader may refer to the original book of Schmorl concerning the intervertebral disk and to the best English abstract, by Beadle.

The importance of the intervertebral disk is found in such conditions as injuries to the spine, kyphosis of senility, adolescent kyphosis, calcification or ossification of the disks and senile osteoporosis.

Keyes and Compere divide the pathologic lesions of the nucleus pulposus into four groups: (1) retropulsion or antipulsion of the nucleus pulposus, (2) lateral shift of the nucleus pulposus, (3) calcification of the nucleus pulposus, and (4) dehydration of the nucleus pulposus. Keller stated that the size and thickness of the intervertebral cartilages or disks are in close relationship to and developed in accordance with the amount and extent of mobility of the spine. The thoracic vertebrae, having limited motion, have the smallest disks, while the

cervical and the lumbar, with their free mobility, have the larger. The intervertebral disks act as shock absorbers, or buffers, and diminish the jarring of the vertebrae produced in walking, and also prevent the jarring of the steps taken from being transmitted to the head. The latter function is further assisted by the natural spinal curves. Any diminution of the size of the intervertebral cartilages will have an effect on the welfare of the body as a whole, through its irritating effect on the nervous system.

Although the intervertebral disks have been known for many years and were written about by Vesalius and Luschka in 1852, it remained for Schmorl in 1927 to disseminate information on which the clinical importance of these structures has been recognized.

Freedman states the intervertebral disk consists of the nucleus pulposus and the annulus fibrosus. The soft mass of the nucleus is usually eccentrically situated and is considered to be the remnant of the chorda tissue of the embryonic spine. The risks form approximately one fourth of the total length of the vertebral column and vary in vertical thickness in several regions, being thickest in the lumbar and thinnest in the upper thoracic region. The nucleus is highly compressible and elastic, the annulus relatively inelastic. The disks thus form delicate buffers between the vertebrae, absorbing shocks transmitted through the spine.

Schmorl thinks that a primary disease of the disk is possible only in young adults, as they possess a vascularized disk.

The disk consists of two parts, an envelop and a core. The former is made up of vertical plates of fibers, one within the other and grading in structure from ordinary fibrous tissue with crisscrossing strands on the outer part to white fibrocartilage on the inner part. The core is yellow and consists of highly elastic fibrocartilage, soft and pulpy in character, with some elastic fibers running through it. It is under great tension, so much so that when the envelop is slit horizontally this core bulges above the level of the surrounding tissues. The nucleus pulposus is a gelatinous substance under pressure and enclosed in the center of each intervertebral disk. The disk is composed of a peripheral fibrous ring called the annulus fibrosus, with a soft central substance. Inside the intervertebral disk, in the center of a compact fibrous ring and between two bony layers protected by a cartilaginous coating, is a gelatinous round mass, under pressure, called the nucleus. There is a direct connection between the epiphyseal plate and the disk. The annulus fibrosus is elastic and the nucleus pulposus is compressible.

Schmorl believed that the cartilage protects the vertebral tissue against the nucleus and the tissue of the disk against infection. Calvé and Galand believe that the nucleus acts as a bearing inserted between two adjacent bodies. The nucleus is important as an axis for the movements which under pressure provide for the elasticity of the disk; it transmits, absorbs and equalizes pressure. It is a soft gelatinous mass, irregularly ovoid, which is found under pressure in the center of each intervertebral disk. Compere called it a hydrodynamic ball bearing.

The clinical manifestations of Kümmell's disease were described in 1891 by Kümmell. It is called the Kümmell-Verneuil syndrome, post-traumatic spondylitis or vertebral collapse. The work of Leriche has helped to clarify the etiology and pathogenesis. He calls it traumatic malacia of the vertebral column.

This lesion is due to mild or severe injury to the spine, following which the patient usually passes through three clinical phases. The syndrome known by the names of Kümmell and Verneuil was studied by Bonnet in 1857. Schede also called attention to softening of the vertebrae secondary to trauma. Kümmell, however, was the first definitely to distinguish the three stages of the syndrome. In 1891 Kümmell described the wedge compression under the name of spondylitis traumatica. Great credit is due him because his work was done before the x-rays had been discovered. There are many unrecognized cases of Kümmell's disease.

The etiology is a moderate or severe trauma occurring in an otherwise normal back. The work of Kalisko and Schroll bears out the thought that Kümmell's disease is caused by minute traumas to osseous and ligamentous structures of the spine, the trauma causing chiefly cracks and small hemorrhages. Kümmell's article states that the disease does not always result from a compression fracture of the spinal segment but that in many instances trauma to the vertebral column without compression of the bodies is followed by rupture of the blood vessels and injury to the periosteum and atrophy of the spongiosa of the vertebral bodies followed by a gradual compression of the segments with a permanent kyphosis.

There are two explanations of the syndrome. According to one, the condition is the result of unrecognized fractures. According to the other, there is a secondary flattening of the vertebrae. It is well known that even severe vertebral fractures may be unrecognized and cause delayed symptoms. Roederer reports two cases of vertebral fractures that were at first not recognized; he states that undoubtedly a certain number of cases in which a diagnosis of Kümmell-Verneuil syndrome is made belong to this group. From observations made on the extremities it is known that osteoporosis may follow trauma. The resorption of bone may follow the prolonged hyperemia. The fact that in many cases presenting the syndrome a considerable portion of the spine is involved indicates that the initial lesion is not a fracture. Marie attributed the deformity to tearing of the anterior vertebral ligaments with subsequent retraction.

Blaine believes that the initial lesion is a minor degree of compression of a vertebral body, but careful x-ray examination of the spine made immediately after injury shows no fractures of the vertebra, which on later x-ray study is found to be decreased in height, indicating a partial collapse.

Leriche believes that Kümmell's disease is due to post-traumatic rarefaction and ossification due to hyperemia. He believes that the delay in the production of the rarefaction is due to the effects of hyperemia. This is brought about by the repeated internal trauma to an improperly balanced spinal column rather than by the external initial injury. Anything precipitating or increasing the process of vasodilatation such as an intercurrent infection, anything that impoverishes the bone and calcium, accelerates the evolution of the changes.

LATENT OR WASSERMANN FAST SYPHILIS

To the Editor:—After treating a man and his wife nine months intensively for syphilis with nearsphenamine and bismuth oxychloride I found that their serum test was little if any altered. They were:

	Man		Wife	
	Kahn	Wassermann-Kolmer	Kahn	Wassermann-Kolmer
Feb. 11, 1936.....	1 plus	4 plus	4 plus	4 plus
June 13, 1936.....	2 plus	4 plus	4 plus	4 plus
Dec. 18, 1936.....			3 plus	4 plus

They were not treated for syphilis until February 1936. The man had apparently contracted the disease four and one-half years before that date and the wife about (this is surmise) three and one-half years before that same date (February 1936). Can you tell me what prognosis as to cure there is? What amount of treatment should be taken if the attempt to eradicate the disease is given up? Is sexual intercourse harmful? An authoritative opinion on these points would be appreciated. The general health of the patients is fairly good. There are no clinical signs or symptoms of syphilis.

F. F. CARR-HARRIS, M.D., Timagami, Ontario.

ANSWER.—This inquiry emphasizes a misconception that is prevalent regarding the treatment of syphilis. The Wassermann reaction remains positive because of the patient's disease and not because of the treatment, even though it is given in insufficient amounts. In other words, in order to determine why the Wassermann and flocculation tests have remained positive in this man and woman it will be necessary to determine the status of the disease in each patient. This will necessitate a spinal fluid examination and a cardiovascular examination, as well as search for evidence of other types of visceral syphilis. If these examinations are completely negative it is probable that the diagnosis of latent syphilis is warranted in both patients. If, however, one or more of these examinations are positive, it is then possible to account for the serologic resistance.

If the diagnosis of latent syphilis is warranted, too much concern should not be manifested over the positive blood tests. If the nine months of treatment included twenty or more injections of arsphenamine and twice as many of a bismuth compound, this is the minimum amount that should be given and ten more injections of arsphenamine and twenty of a bismuth compound might well be administered. On the other hand, if more than the minimum has been given it would be advisable to give two courses of bismuth, fifteen injections each, a year for the next two years; reexaminations every six months for evidence of cardiovascular or visceral syphilis should be carried out. The majority of patients with latent syphilis observed for a period of ten years have become serologically negative. The important point is to make sure that the patients have latent syphilis before placing them on their own defensive mechanism.

The hazard in sexual intercourse to this couple lies in the possibility of pregnancy. If the woman has passed the child-bearing age there is no contraindication to coitus, as they both have the disease. In view of the positive Kolmer and Kahn

tests the woman must avoid pregnancy, and if she is averse to the use of contraceptives and has no pelvic disease that will prevent pregnancy, the risk of having a syphilitic child must be fully explained to the couple.

INFECTION FROM ANESTHETIC FACE MASK

To the Editor:—I am writing regarding the possibility of infection from gas and ether masks such as are used on ordinary commercial machines. As you know, these face pieces are made from celluloid or similar material and are connected to a rubber rebreathing bag by 3 to 4 feet of tubing, the latter having some eighty or ninety deep corrugations. Most places sterilize these by washing them in soap and water. For many years I have used Gwathmey's face mask, which is made of metal and connected to a tank by a small tube. The face mask and rebreathing bag can be sterilized by boiling.

CHARLES N. SPRATT, M.D., Minneapolis.

ANSWER.—The possibility of infection from masks such as are used on ordinary commercial gas and ether machines is relatively remote if the ordinary precautions are exercised. R. C. Coburn (Safety and Science in Nitrous Oxide Administration, *M. Rec.* 82:798 [Nov.] 1912), in writing on administration of nitrous oxide, advocated "sterilization of all parts contaminated by breathing." Ordinarily, the instructions issued by the manufacturer of equipment to the user indicate the desirability of washing the mask and tubing with soap suds and hot water. It should be emphasized that it is highly desirable to keep on hand a sufficient amount of equipment so that, when one is suspicious that an unusual infection is present, the metal parts involved can be autoclaved, the rubber parts can be boiled, and the celluloid parts or those that cannot be boiled can be immersed in an antiseptic solution for a sufficient time to insure their sterilization. Solutions used are made with mercury bichloride or saponated solution of cresol, and some anesthetists use alcohol in proper dilutions or formaldehyde. Solutions should be well rinsed off, for rubber picks up cresol readily, as has been shown by R. P. Herwick and D. N. Treweek in their study of burns from an anesthesia mask sterilized in saponated solution of cresol (Burns from Anesthesia Mask Sterilized in Compound Solution of Cresol, *THE JOURNAL*, Feb. 11, 1933, p. 407). Caution must be exercised when this solution is used for sterilization of rubber parts that make contact with the skin.

Most modern gas machines are equipped with canisters for soda lime, which is an absorber for the carbon dioxide that is eliminated in the mixture. R. M. Waters wrote as follows (Carbon Dioxide Absorption from Anesthetic Mixtures, *California & West. Med.* 35:342 [Nov.] 1931): "It has been suggested that the danger of cross infections was enhanced [by the canister of soda lime]. The mask is removed from the canister after each anesthesia and thoroughly washed with soap suds and hot water, rinsed in hot water and dried, unless a particularly dangerous case from the standpoint of infection has been handled, when further sterilizing procedures are instituted. The canister containing soda lime granules may be autoclaved with surgical dressings if necessary. The breathing bag may be washed in alcohol, boiled or otherwise sterilized. The possibility, however, of bacterial contamination was investigated by Dr. W. D. Stovall, director of the Wisconsin State Laboratory of Hygiene and visiting bacteriologist at the Wisconsin General Hospital. His reply follows: 'Complying with your request to carry out some bacteriological examinations to determine the probability of your anesthesia apparatus acting as an agent for conveying bacteria from one person to another, I have performed two sets of experiments. First, I poured a culture of staphylococcus into the canister containing soda lime. I then drew air, which was first washed through several washings of sterile distilled water, through the soda lime in the canister and through beef infusion glucose broth. This experiment I allowed to run two hours and at the end of that time the cultures were placed in the incubator for a period of a week. In no case did the culture show a growth of any kind. The other experiment was made by blowing air into a bottle containing a suspension of *Bacillus prodigiosus*. The air was blown through this suspension of bacteria so that it agitated it and made a fine spray in the bottle. Through a small glass tube which reached just through the cork of this bottle, I drew air by a process of suction through the soda lime of the canister and then through glucose beef infusion broth. These cultures were also incubated for one week. None of them showed any growth. While this is a limited number of experiments, I consider that the apparatus was submitted to a very severe test and I believe that, if the bacteria do not find their way through the canister into the media by these experiments, there is certainly no possibility of bacteria being transferred from one patient to another by con-

tamination of the lime in the canister.' In order to completely cover this situation, Guedel has made it a practice to place mask, canister and bag in a muslin container, autoclaving the container and contents after each anesthesia. From the standpoint of the 'cleanliness appeal' to the patient, we believe this a good practice, although entirely unnecessary for the complete avoidance of cross infections."

It is probable that, if these commonly applied principles of cleanliness and asepsis are employed, the ordinary patient can be safely anesthetized following the previous use of the equipment for anesthetization of another ordinary patient. Obviously, however, it would be best that a patient who is known to have a contagious respiratory infection should be the last one listed for operation on a given day. If this is not possible, following the use of the equipment for anesthetization of such an individual the metal, rubber and celluloid parts should be sterilized in the manner recommended in the opening paragraph. The soda lime in the canister should be discarded after use in each suggestive case.

A report of an address on ether pneumonia, given by J. M. Anders (Ether Pneumonia, *Brit. M. J.* 2:6 (July 9, epitome of current medical literature, 1898) reads in part as follows: "The micro-organisms giving rise to the pneumonia were probably not usually obtained from the mask or inhaler used, but it was likely that partly dried secretions were loosened by the moisture in consequence of the increased secretion of the mucosa caused by the irritating effects of the ether, and that they were thus drawn into the lungs. In all the cases that had come under his own observation there was bronchitis, coryza or some other inflammatory condition of the respiratory tract before the administration of the anesthetic. Any such predisposing causes should, if possible, be removed first."

In certain special fields, special methods and special equipment may be necessary, and the equipment should be designed with the idea that it can be sterilized.

Contamination of apparatus, even though it is not used, is a remote possibility, but even this possibility can be minimized by care and proper covering of the apparatus and by its being placed in a room as clean as an operating room should be.

ACID ASH FOODS AND SALTY TASTE IN MOUTH

To the Editor:—A woman, aged 53, who has been considerably overweight for a number of years, is now reduced but not to a normal weight. She complains of a salty taste in her mouth, which is aggravated by postnasal dripping and is worse when she is nervous. I told her I thought it was due to a reduced alkalinity, because they are a family who eat a lot of acid forming foods: steaks, meats, white bread and butter.

M.D., Georgia.

ANSWER.—The acid forming and base forming qualities of foods have received considerable attention from some clinicians and a great deal of incoherent discussion by laymen.

In general, one should take at least enough alkaline ash to balance or neutralize the effect of the acid ash foods. The best health of the tissues depends on maintaining a slight preponderance of bases over acids in the body.

A general classification is given to show what foods in general yield the neutral, acid and alkaline ash:

Neutral Ash	Acid Ash	Alkaline Ash
Butter	Egg	Milk
Cream	Meat, fish and poultry	Nuts
Oil	Oyster	Fruits (except cranberries, plums, prunes and rhubarb)
Lard	Bread of all kinds	Vegetables (especially legumes and white potatoes)
Sugar	Cereals	
Cornstarch	Pastries	
Tapioca	Puddings	

Among the many ideas, fads and fancies about diet encountered by the physician is the "acid fad" in diet. Many patients worry and attribute their ills to what they believe to be acidosis resulting from the eating of acid foods. They feel that acid stomach, water brash and heartburn are all due to too much acid in the system from eating acid foods. They therefore eliminate many articles of food from their diet for fear they will produce acid in the body and by so doing they are apt to secure an inadequate diet.

There is a great variation in gastric acid secretion and often the secretions bear little relation to the average diet. After organic disease is excluded, the physician should realize that the acid secretions may be due to neurotic tendencies or to chronic nervous exhaustion and fatigue. Acid stomach, water brash and heartburn are not due to too much acid in the system from eating acid foods. The patient must be taught that taste does not tell whether a food is acid or alkaline. For example, eggs and meat form acid in the body, while orange, grapefruit and tomato are alkaline formers. If one includes in

the diet a generous amount of vegetables, fruits and milk, one is sure to have a well balanced diet.

In general a heavily coated tongue will have impaired taste function, the taste bulbs being covered by the deposit. Swelling of the mucous membrane of the nose, with consequent obstruction, brings on an early perversion or absence of the sense of taste and smell. Irritating condiments also impair the sense of taste. A large group of taste reflex perversions are found in vagotonic persons, chiefly of gastric origin. Psychogenic taste modifications such as metallic tastes are frequently found in neuroses.

In view of the fact that the patient finds that her salty taste is aggravated by postnasal dripping and is worse when she is nervous, the nervous reaction that stimulates the postnasal dripping is more likely responsible rather than any relation of acid ash or alkaline ash foods.

PAIN AND CIRCULATORY DISTURBANCE IN FOOT

To the Editor:—A woman, aged 58, for the past two years has been having severe pains in one foot, the pains beginning in the great toe and spreading over the rest of the toes. The foot is cold and the pains last from six to twenty-four hours, being relieved only by hypodermic injections of morphine and atropine sulfate. Glyceryl trinitrate, contrast baths, barbitol, acetylsalicylic acid and other preparations recommended for intermittent claudication give no relief. The basal metabolism, blood count, urinalysis and the heart and lungs are normal, the Wassermann reaction is negative, x-ray examination of the leg and foot shows no excessive calcification of the arteries, and the blood pressure is 150 systolic, 90 diastolic. She is wearing an orthopedic shoe. The attacks are getting more frequent and more severe and I am desirous of preventing these attacks. She is a seamstress at a hospital and runs an electric sewing machine all day. She is overweight but by dieting I have reduced her 20 pounds (9 Kg.) in three months. Please omit name.

M.D., New Jersey.

ANSWER.—The information contained in the inquiry is too inadequate to allow one to make a diagnosis. Desirable information is a more detailed history of the disease, a record of pulsations in the arteries of the legs, the effect of elevation and dependence on the color of the foot, and the presence or absence of sensory changes and changes in reflexes. Diabetes should be excluded by determination of the sugar in the blood and by studies of dextrose tolerance. It is quite apparent that the patient does not have intermittent claudication, since this condition is characterized by distress brought on by exercise and relieved by rest; however, she may have ischemic neuritis secondary to diminished blood supply resulting from arteriosclerosis obliterans. Such a diagnosis must be based on objective evidence of diminished blood supply, such as absence of pulsations in the dorsalis pedis, posterior tibial and popliteal arteries, abnormal pallor with elevation of the foot, abnormal rubor with dependence of it, and lowered temperature of the skin. A complete neurologic examination is advisable. Tabes dorsalis is to be considered. Provided no primary disease amenable to treatment to which the distress could be secondary is detectable, section, injection or crushing of the peripheral nerves (*Ann. Surg.* 98:55 [July] 1933) or the intraspinal injection of alcohol (Greenhill, J. P., and Schmitz, H. E.: Intraspinal [Subarachnoid] Injection of Alcohol, *THE JOURNAL*, Aug. 10, 1935, p. 406), or roentgen treatment of the lumbosacral spine should be considered. Occasionally, such episodes of pain are characteristic of erythromelalgia (*Ann. J. M. Sc.* 183:468 [April] 1932), which is frequently associated with polycythemia.

DERMATITIS FROM HOSIERY DYES

To the Editor:—What is the latest treatment or the most common treatment for acute and chronic dermatitis caused by dye powder (used to dye hosiery)? Also that caused by silk and wool? I have had good results with ultraviolet when the patient will stay home for two or three weeks but some are unable to give up their work, owing to financial difficulties. What would be your procedure in these cases?

M.D., Pennsylvania.

ANSWER.—The treatment of external irritant dermatitis follows the principles of the treatment of dermatoses in general. However, the first essential is to remove the causal agent that is exciting the cutaneous reaction. The activities and environment of the patient in addition to his work may reveal contributory sources of irritation. In the event that it is impossible to prevent further contact with an irritant in the patient's work, the patient must be protected. Those who are mildly affected can continue work by protection of the parts by long sleeves and gloves and a protective ointment. Desensitization as a means of treatment has not met with success in the case of chemical (dye powder) dermatitis. Desensitization to silk and to wool by subcutaneous injections can be attempted. Those cases exhibiting an acute dermatitis are best removed from their work and the source of irritation.

The local treatment of the dermatitis during the acute stage should consist of wet dressings of saturated solution of boric acid, or solution of aluminum subacetate, 1 part diluted with from 10 to 16 parts of water. Calamine lotion compresses, to which phenol may be added if there is much itching, are also effective. The use of boric acid ointment or 2 per cent ichthammol (ichthylol) in zinc oxide ointment may be applied at night. In the chronic cases one should rule out any general factors that may contribute to the chronicity, and the use of a 3 to 6 per cent crude coal tar ointment in zinc paste or a 3 to 10 per cent oil of cade ointment, starting with the milder strengths and cautiously increasing the strength, is effective. Fractional x-ray treatment, 75 roentgens once a week in competent hands for from six to eight doses, is a valuable adjunct to treatment.

PROPHYLAXIS OF RABIES IN DOGS

To the Editor:—At a local medical society meeting recently there was considerable discussion over the single prophylactic injection of dogs for rabies. Can a family feel secure their pet dog will be immune from rabies after the single injection of antirabies serum as a prophylactic? Does it take several preventive doses to protect satisfactorily against development of hydrophobia in the dog? Pardon the question about dogs, but dogs and people are usual inhabitants of the same house; in fact, I have one myself; and children playing with these pets may easily contract the disease innocently from their own pet if the prophylactic doses we have been accustomed to use from the manufacturers are not really protective. A few dogs have been reported as developing rabies following the prophylactic injection of antirabies serum, which was the reason for the claim being fostered. In such cases is the reason likely that the rabies infection was massive or close to the brain (the entrance of the virus) or insufficient time for immunity had not elapsed between prophylactic administration and the rabies bite to develop the necessary immunity?

E. H. COACHMAN, M.D., Muskogee, Okla.

ANSWER:—Robert Olesen (*Pub. Health Rep.* 50: 1087 [Aug. 16] 1935) reviewed the available data on the effectiveness of vaccination against canine rabies. He states with reference to canine antirabic vaccination: "Unfortunately evidence concerning the value of available vaccines is conflicting, indecisive and unsatisfactory. The evidence seems to indicate strongly that vaccination against rabies is in the experimental stage and that, despite the claims of a few enthusiastic advocates, reliance should not at present be placed upon this measure."

However, it is the consensus that, when antirabic vaccination in dogs is successful, the resulting immunity has a duration of about one year, after which vaccination should be repeated.

Immunity that is the result of antirabic vaccination requires time for its development. In man it is reported as appearing about two weeks following the Pasteur treatment. It is reasonable to believe, therefore, that during this period of the development of immunity the vaccinated dog may still be susceptible to rabies and may contract the disease if exposed at this time to the virus in massive doses or by head bites.

SUDDEN DEATH DURING MENSTRUATION

To the Editor:—A white woman, aged 24, apparently in good health, helped her husband pile some brush, and sawed wood all day. She had been menstruating for three days previously. After doing her usual evening work she sat down and attempted to lift her only child, aged 2½ years, but suddenly dropped over dead. There is no history of hypertension, rheumatic fever, syphilis or other symptoms of heart disease. I was called to see the patient, arriving at the home about twenty minutes after death. The body showed nothing in particular that would explain the sudden death. No autopsy was done. Would you kindly render your opinion as to the cause of death? I had never seen the patient previously and only a brief history was obtained from the sorrow-stricken family. Do you think the fact that the patient was menstruating is of any significance in this case?

M.D., North Carolina.

ANSWER:—It is not at all likely that menstruation was of any significance in the death of the patient. The cause of a sudden death like this is to be found first and most probably in the heart.

APPENDIX AND PERISTALSIS OF COLON

To the Editor:—Please inform me if the appendix is the initiator of peristalsis of the colon. What are the latest theories as to what causes the peristalsis in the colon?

J. MARSH FRÈRE, M.D., Chattanooga, Tenn.

ANSWER:—There is at present no evidence that the appendix in any way governs the movements of the colon. On Alvarez's "gradient theory" of intestinal motility one might look for such motor influence from the appendix, but removal of the appendix in man and other animals reveals no such influence.

The colon motility, like the rest of the intestine, is influenced by local and by extrinsic factors. Among the latter are the extrinsic nerves to the colonic musculature and the hypogastric and the sacral autonomies. It is probably mainly through these

nerves that spastic states and the so-called gastrocolonic reflex (increased colonic motility and tendency to defecation after eating a full meal) take place. The local factors are distention of the colon by its content (indigestible parts of the food, gas, enemas) and irritation of nerve endings of the mucosa. The latter appears to act both through the extrinsic nerves of the colon and through Auerbach's plexus in the wall of the colon.

FIRST USE OF TERM "LA GRIPPE"

To the Editor:—In the current novel "Gone with the Wind" I find the term "la grippe" used in describing an ailment. The time portrayed in the book is Civil War time, 1860-1865. It is my impression that the term "la grippe" was not used in United States medical circles until in the early 1890's, when an influx of it swept over the United States, supposedly imported from France. Will you kindly give me your ideas on this subject? We had in the United States what was once known as "Tyler's grip," but I believe this was before the Civil War.

W. G. MCGLUMPHY, D.D.S., Moundsville, W. Va.

ANSWER:—In France "la grippe" has been used since the epidemic of 1743 (Townsend, J. G.: A Review of the Literature on Influenza and the Common Cold, supplement 48 to *Public Health Reports*, 1924). The term was used in the United States even before the Civil War, as shown by the following references:

McCall, A.: Some Account of the Epidemic "Grippe," *Boston M. & S. J.* 31:254, 1844-1845.

Stewart, E. C.: An Account of the Epidemic Influenza Prevailing at Paris, Known There Under the Name of La Grippe, *M. Examiner* (Philadelphia) 1:353, 1842.

ALLERGY TO HAM

To the Editor:—Recently I have had several cases of allergy which have been traced to eating ham. I was wondering whether you could tell me how the hams are cured. Is a chemical used in curing the ham? If so, what is the chemical?

ROBERT N. HEDGES, M.D., Chicago.

ANSWER:—The substances used in the curing of ham are salt, sodium nitrate, sodium nitrite, sugar, and wood smoke. Only special hams, easily recognizable by the color and specific odor, as the Italian ham, have spices. These are various peppers and occasionally paprika. None of the substances used in the curing of ordinary ham have been found to be the cause of any allergic symptoms, although Duke has reported a case of asthma due to wood smoke. This, however, could not possibly apply to the concentrations of smoke present in cured ham.

USE OF PHENOL AND GLYCERIN IN OTITIS MEDIA

To the Editor:—What is considered the best management of the early stage of acute otitis media prior to suppuration? Otologists seem to object to the local use of phenol and glycerin, glycerin, or hot irrigations to the canal. What nasal treatment is advised

M.D., New York.

ANSWER:—Otologists do not object to the local use of phenol and glycerin or plain glycerin in the early stages of acute otitis media. Intended chiefly for their anesthetic and perhaps antiseptic qualities or to deplete the middle ear, these agents may be used in the first twenty-four to forty-eight hours of an acute otitis; if the symptoms are not improved by the end of that time then the logical thing to do is a paracentesis of the drum membrane. Closing one's eyes to symptoms and placing undue reliance on the efficacy of local anesthetics is not good otologic practice. The prolonged use of phenol furthermore leads to a desquamation of the epithelium of the external auditory canal and coats the drum membrane with a white debris. Landmarks thereby become so lost that decision as to future therapy becomes difficult.

BURNS OF EYE

To the Editor:—What is the best acid substance for neutralizing an alkali burn of the eye? The best alkali for neutralizing an alkali burn of the eye?

M.D., Massachusetts.

ANSWER:—The best substance for primary use in either an alkali or acid burn of the eye is ordinary water in large quantities. The purpose is to dilute the damaging chemical as much as possible and to flush all excess from the conjunctival sac. As a rule, when an eye is burned with a chemical substance no neutralizing solution is at hand for immediate use. But if a neutralizer were available it would not be of much more use than ordinary tap water, for any acid or alkali sufficiently concentrated to neutralize an alkali or acid substance in the conjunctival sac would do as much damage as the original injuring agent. The damage is done within a few seconds and later neutralizing agents are of but little value.

Dr. Robert Frère Library

A. J. A. Medical College

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However, in the case of acid burns, a 3 to 5 per cent solution of sodium bicarbonate is as efficacious as anything else, while in the case of an alkali burn a 4 per cent solution of boric acid suffices. The quantity and rapidity of use is of far greater importance than the quality.

KAHN TEST OF CORD BLOOD

To the Editor:—Kindly inform whether or not in your opinion the Kahn test using cord blood is satisfactory. I shall appreciate a reply, for I am doing the Kahn test as a routine in all obstetric cases, using cord blood. If it is not the correct procedure, I should like to make a change.

M. G. SHARP, Ottawa, Ill.

ANSWER.—The question of the dependability of the Kahn test carried out with cord blood has been discussed in these columns previously (*THE JOURNAL*, March 25, 1933, p. 991). Judged from published reports, the Kahn test is as reliable with cord blood as with non-cord blood. The belief that tests for syphilis do not give dependable results with cord blood is based on the fact that serum from such blood shows some tendency toward nonspecific fixation of complement (anticomplementary action) in complement fixation tests. But the Kahn test does not employ complement in its set up and is apparently not influenced by anticomplementary properties of serum.

PARALYSIS AGITANS

To the Editor:—Will you please advise me what the most recent opinion is as to the choice between atropine, stramonium and scopolamine in the treatment of cases of paralysis agitans. I have a patient who seems to be rather sensitive to atropine, although it does prove rather effective in controlling the tremors.

JOHN THOMAS BOWEN, M.D., Clearwater, Fla.

ANSWER.—All three of these drugs have been used with some success in the treatment of paralysis agitans and it may be that one of them might agree better with a certain patient than another one, so that treatment with the different drugs in succession is decidedly desirable. It is the side-effects, which are similar in all of these drugs, that limit their practical utility; but they may, in a certain case, appear later with one of them rather than with the other.

TERPIN HYDRATE IN ELIXIR

To the Editor:—In *THE JOURNAL*, Sept. 14, 1935, page 879, Dr. Fantus gives a prescription as follows:

R Terpin Hydrate 5.0 Gm.
Iso-alcoholic elixir 60.0 cc.

M. Label: One teaspoonful in water every three hours.

My druggist reports that he cannot dissolve the terpin hydrate in this amount of elixir. He seems to be correct when I note that the proportions are 1:12 and that terpin hydrate is soluble in 95 per cent alcohol only in the proportions 1:13. Is this prescription in error or does my druggist have a poor elixir preparation? Please omit name.

M.D., Ohio.

ANSWER.—High-alcoholic elixir (N. F.) will dissolve the indicated quantity of terpin hydrate on prolonged shaking or on standing over night.

PRISM EXERCISING OF EYE FOR SQUINT

To the Editor:—An opinion was expressed to me by a physician that there was some danger or possible damage that could result from exercising the eyes with prisms, as in squint cases. What is known concerning such danger?

M.D., North Carolina.

ANSWER.—If the muscle imbalance is properly diagnosed and the prism exercises are properly done and the condition is properly checked at adequate intervals, there is no possibility of danger or damage.

PUBERTY MASTITIS

To the Editor:—I wish to inquire as to the significance, in a boy aged 13½ years, of bilateral indurated and slightly tender disks underlying the nipples and areolae. My experience with boys of this age is limited. Were this child a girl I should be sure that this was a normal manifestation of puberal development, and I think that it probably is so in this case also. Is this condition common in boys? M.D., California.

ANSWER.—The so-called puberty mastitis or mastitis adolescentum occurs in boys as well as in girls. It is probably more common in boys than is generally assumed, and it may become so marked as to constitute a true fibrous tumor. It may involve one or both breasts. It regresses spontaneously in most cases after several weeks or months. The term puberty mastitis is somewhat misleading, since in typical cases the process is not inflammatory.

POSTMORTEM LIVIDITY

To the Editor:—Will you please give me some authentic information on the time the lividity of the skin and subcutaneous tissue lasts after death from sudden and complete obstruction of the upper air passages. What is the cause of the lividity and the cause of death in such a case? I understand there has been some experimental work done on this subject in recent years.

ALEXANDER GALBRAITH, M.D., Oakland, Calif.

ANSWER.—The lividity would persist until obscured by decomposition and other postmortem changes. The lividity is due to venous obstruction from the interference with the respiration, which in turn is the cause of death in such cases. This is not to be confused with ordinary postmortem lividity.

BIOLOGIC PREPARATIONS IN FURUNCULOSIS

To the Editor:—May I have your comments on the relative merits of stock vaccines, autogenous vaccine and staphylococcus toxoid in the treatment and prevention of furunculosis?

M.D., Massachusetts.

ANSWER.—A potent, well prepared autogenous vaccine is more effective in the treatment of furunculosis than either toxoid or a stock vaccine. Staphylococcus toxoid exhibits a slightly higher degree of effectivity in selected cases than stock vaccine.

INTRAVENOUS USE OF CALCIUM COMPOUNDS IN DIGITALIZED PATIENT CONTRAINDICATED

To the Editor:—Is calcium, intravenously administered, contraindicated in a patient who is partially or wholly digitalized? Please omit name.

M.D., Texas.

ANSWER.—There is a decided danger from intravenous injection of calcium salts in a digitalized patient. Several deaths are on record from this cause.

GOLDSTEIN'S HEMATEMESIS, GASTRORRHAGIA AND GASTROSTAXIS

To the Editor:—Gastric bleeding (gastrorrhagia) discussed in *THE JOURNAL*, Dec. 19, 1936, page 2072, suggests that this condition deserves a special name and states that no description of it appears to have been published. The use of moccasin snake venom injections also is mentioned as having been used by Watkins of the Mayo Clinic with excellent results.

Reports and descriptions of this gastric hemorrhagic condition have been reported, with "special names," such as "gastrostaxis" (White, W. H.: *Lancet* 1:416, 1912), "telangiectatic dysplasia of the stomach with hemorrhages" or "Goldstein's Hematemesis" (*Arch. Int. Med.* 48:836-865 [Nov., part 11] 1931; *Arch. Dermat. & Syph.* 26:282-308 [Aug.] 1932; *Brit. M. J.* 1:1275 [June 20] 1936; L. N. Boston [1930]; Ersner [1931]; Schoen [1930]; Ullmann [1896], and others).

I suggest that these cases are due to dysplasia and telangiectatic bleeding when no other evidence is found, such as abdominal Hodgkin's disease, hemorrhagic blood dyscrasias, leukemias, severe anemias, uremic states, malignancy, polyposis, hepatic cirrhosis or chemical poisoning, vicarious menstruation (substitutional extragenital bleeding and supplementary menses), and gastric allergy. Russell viper venom in solution has been used by mouth for gastric bleeding.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

BLOOD-TINGED SEMEN

To the Editor:—In *Queries and Minor Notes* in *THE JOURNAL*, January 30, page 416, is a question concerning blood-tinged semen. Having seen a similar case, I would suggest a possible explanation. The patient referred to was a married farmer, aged 51, who first noticed the appearance of bloody semen in 1934; it varied from reddish brown to light red. Microscopic and chemical examination confirmed the diagnosis of bloody semen. No pathologic condition was found on endoscopic examination. The condition lessened and stopped within nine months. He remains well. Treatment consisted of weekly prostatic massage and instillations of silver nitrate and interdiction of his habit of coitus interruptus, which he had practiced throughout his entire married life. There is reason to believe that withdrawal was the prime cause of the condition, resulting in chronic congestion in the sex organs, probably localized in the vesicles. There seems no reason why congestion of the posterior urethra and prostate could not occur on this basis.

HAROLD J. HARRIS, M.D., New York.

OTITIS MEDIA AND EPILEPSY

To the Editor:—In *THE JOURNAL*, January 30, page 414, there is a question from a physician concerning a patient who has epilepsy with a chronic otitis media. In answer the statement is made that the otitis described is not the cause of the convulsions. There is considerable doubt in my mind whether the question can be answered with such a categorical negative. In the Neurological Unit of the Boston City Hospital we have had three patients with epilepsy and chronic otitis in whom the attacks have ceased following radical operation on the mastoid. While I am aware this is only a post hoc argument, I think it does create a presumption.

TRACY J. PUTNAM, M.D., Boston.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

*Thirty-Third Annual Meeting, held in Chicago,
Feb. 15 and 16, 1937*

DR. RAY LYMAN WILBUR, Stanford University, Calif.,
in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 15—MORNING

Leadership in Medical Education

DR. RAY LYMAN WILBUR, Stanford University, Calif.: This article appeared in full in *THE JOURNAL*, March 6, page 771.

The Regulation of the Professions in the Public Interest

WILLIAM E. WICKENDEN, B.S., Cleveland: The protection of public welfare in matters of professional service involves at least three major considerations—keeping incompetent or unscrupulous men out, getting a sufficient quota of men of high character and ability in, and maintaining the economic and social conditions of practice essential to an adequate and disinterested service of the public. By origin and tradition, professions are self-regulating bodies. In general, each profession has built up its own status, determined its own conditions of admission, established its own code of ethics, and fixed its own system of compensation for services. The public has been tolerant toward professional autonomy until its own interests have become endangered. When public regulation has been imposed, the intent has been not to take the control of a profession out of the hands of its members but merely to establish such rules of control as are deemed necessary to public interest.

The occasion for such regulation and its extent differ significantly as one passes from those professions which deal with personal emergencies to those which touch social interest mainly in the area of corporate activities. A personal emergency of health or safety, or a problem of mental or psychic adjustment calls for a type of knowledge too esoteric for the layman to judge competently for himself. These fields have always been beset by quacks, charlatans and miracle workers, and even intelligent people when faced by extreme emergencies show an almost uncontrollable tendency to throw sober science to the winds and grasp at fabulous nostrums. The average man, facing the power of the law, is usually reduced to an abject helplessness which leaves him open to shameless extortion.

To leave the public exposed to quackery and exploitation under these circumstances would violate every consideration of humanity and public interest. In commercial transactions the buyer and the seller are presumed to meet on equal terms, with the buyer free to decline the terms offered. The man with acute appendicitis does not enjoy these advantages. The least the public can do for the distressed individual is to guarantee that whatever professional servant he may engage has at least certain minimum standards of training, experience and character, and to impose on the practitioner that degree of accountability for his conduct and performance which public safety demands.

Where the interests and responsibilities of one profession run closely parallel to or overlap those of another, some delimitation of fields by statute has often been found to be necessary. This usually takes the form of restrictions on the right to sign and file plans for approval by the authorities charged with the supervision of building operations in the interest of public safety. What regulation through licensure and statutory definition of powers in the interest of public safety accomplishes directly is simply an imposition on the profession of minimum standards of admission, in terms of training, experience and social accountability. The immediate aim is to exclude incompetents, pretenders and crooks. Indirectly, licensure operates

to regulate competition within the profession and to invest it with a greater or less degree of prestige in the public mind.

The restriction of admissions to certain professions is clearly in the public interest, while in others it is much more questionable. This point may be exemplified by contrasts in status and function between the physician and the engineer. Medicine, as every one knows, is one of the group of professions which serve individuals in personal emergencies. The incidence of these emergencies in a population living on a given social level is well known and determines the number of persons a single physician can serve effectively. Inevitable inequalities in distribution and service must be allowed for, but an optimum quota or ratio of physicians to population is easy to establish. An increase of physicians beyond this quota does not insure superior service nor does it contribute to medical progress; on the contrary, it merely multiplies temptations to exploit human ignorance and frailty on the plea that surplus practitioners must live, somehow. Competition may be the life of trade but it is likely to be the death of good medical care. Furthermore, medicine is a sharply bounded occupation from which few men are called by choice or circumstance to other careers; nor are there easy gradations of authority to keep a career open to the self trained. Every French private, according to Napoleon, carried a marshal's baton in his knapsack, but no hospital orderly is permitted the illusion that he may somehow rise to the rank of chief surgeon.

Engineers seldom serve individuals. They serve society through its corporate agencies and in its constructive enterprises. No statistician can state the incidence of these constructive needs; their number is not inherently limited, nor does engineering progress tend to restrict or eliminate them as medical progress aims to banish disease. Rather, all engineering progress tends to widen the domain of engineering. No one can set an optimum quota of engineers for a given population, nor is it clear that a sharp restriction of their numbers is necessary for public welfare and safety. To have fewer engineers does not necessarily imply better engineers, so long as their work lies principally in areas of competitive enterprise. Technical progress in engineering apparently is little affected by overcrowding except as the horse sense of one generation is unable to compete successfully with the science of the next. To create and protect a monopoly for the horse sense generation might have been in their personal interest but not in the interest of scientific advance. The profession of medicine is by law and tradition a caste; sharp, closed boundaries separate it from nearly all other groups that touch on its functions such as pharmacists, laboratory technicians, nurses and opticians. The profession of engineering is not a caste but a vaguely bounded nucleus within a large body of technical workers and officers of industry. The gradations of function between highly technical specialists at one extreme and almost pure executives at the other are imperceptible. Constant interchange between these functions within the larger group are going on. Close these free paths of interchange between technical, executive, commercial and producing groups, and the engineering profession would quickly sterilize itself.

A wide range of professional patterns exists, and too much regimentation under the law, aiming to impose a common pattern, would be stultifying in its effect. Licensure is effective in setting minimum qualifications for admission only, and in strengthening the police powers which may be invoked in cases of malfeasance. In itself it offers no positive assurance that men of high caliber and devoted spirit will be drawn into any field of professional service. In itself it invests a profession with only a modicum of public prestige and esteem. The state of New York issues professional licenses in the fields of medicine, podiatry, dentistry, pharmacy, veterinary medicine, nursing, accountancy, optometry, shorthand reporting, architecture, engineering and public school teaching—a range of professions varying so widely in public prestige, as to make it clear that licensure, *ipso facto*, is in no sense a key to esteem.

Public regulation has done little to lessen or to alter the inner obligations of our professional groups. We are still responsible for our standards of education and of personnel selection. These standards operate at the doors of our professional schools even more significantly than in the examining rooms of the licensing boards. Our part is to get the right

men in; the board can merely keep the wrong man out. As professions, we are still responsible for the advancement of the knowledge and skill we have received as a priceless patrimony from our forebears. No legal status can possibly affect our groups in public esteem and prestige as much as do our contributions to knowledge and public well being. The cultivation of professional spirit, the nurture of the ideals of disinterested service, the preservation of high codes of honor and ethics, still rest on the profession itself. Statutes and regulations, licensure and legal status are things of the letter, needful for public protection but not in themselves services of professional vitality and life.

The Price of Professional Liberty

GUY STANTON FORD, Ph.D., Minneapolis: How does a professional group come to be set aside and trusted with the regulation of its own profession and of its relation to society in general? It is not necessary to go back to the medieval guilds and corporations that survive in a shadowy form in the ordinances of our universities and colleges and learned professions and much more in their spirit and privileges. What we see today is that a learned profession has characteristics that set it apart and are the basis of its claim to a preferred position. The first index is that it performs some special, clearly marked and socially significant function that is not and cannot be performed by any other group or by the generality of mankind. Second, that it is a function that requires peculiar skill and definite preparation. This preparation consists always of training of a professional character, which in turn is based on a general education and is often interrelated with a period of apprenticeship. Third, that this professional group is effective in limiting its numbers, and fourth, that it has control over its membership by codes and disciplinary measures that are enforced in a way evident to the public. I call special attention to this last phrase, "codes and disciplinary measures that are enforced in a way evident to the public," because it is one of the most important from the standpoint of public confidence and one of the most neglected by every learned profession.

These criteria which I have borrowed from Professor Tauesch's volume on Professional and Business Ethics are useful. There is, however, another and more fundamental test, it seems to me. It is based on the ideals and purposes of the group or profession. If the service of the group organizations are on the level of self interest and economic and material advantage to its members, it is not and cannot be a learned profession in any proper sense. Each group, whatever its qualifications for membership, can in the long run maintain its independence and liberty of self direction only at the price of showing constantly its freedom from selfish group interests. The wise response of any profession to social change, its loyalty to the general welfare, the clarity with which it makes its professional codes comprehensible to the public which it claims to serve through and by such codes constitute the best bulwark for its cherished historic liberties.

The two great historic learned professions of teaching and preaching fail to meet at least three counts of the four mentioned; namely, there is no limitation of the number of teachers or preachers either by group control or by social prescription, nor is there more than a shadow of a uniform national standard in professional education. No national organization of either is inclusive or effective enough to set standards of educational and professional training or enforce a code of any kind. Progress toward real professional status for teachers will be slow forever. Yet they may well be the two groups who most unselfishly devote themselves by their lights, however feeble, to the service of their fellow men. My purpose is not to indict any professional group but to remind all of them that the price of their privileges and liberties as a profession lies in recognition, readjustment and thoughtful reorientation to meet the new responsibilities created by the fundamental social changes.

The medical profession is the most powerful and coherent of any of the professional groups. With its definite professional preparation and objectives, the considerable background of general education that is now prescribed and the code that it professes, it comes nearer meeting the technical definition of a profession than any other major profession. This organization and its policies and attitudes more nearly dominate the

thinking of the medical profession than does the bar association that of the lawyers. It may not be able to exclude sectarian practitioners from the healing art or discipline all the malpractitioners who flaunt a medical degree, but if it chooses it can outlaw the most distinguished member of the profession if his views contravene the accepted mores of the group. It can crush or encourage experimentation in medical education and debar its members from professional association with any one having a specific healing skill or knowledge unless the possessor has also a medical degree. In the medical profession the thoughtful citizen recognizes a group that can and does bring science into the service of the noble art of healing and alleviation.

The gratitude of the patient and of the family and friends that stand helpless but hopeful in the presence of the physician surround the profession with an aura that colors no other profession so constantly and so subtly. All these professional and personal factors make a picture that explains why the medical profession is in the perilous position of having greater liberties and privileges than any other similar group.

It is truly a perilous position because there is peril in great privilege and great responsibility. Any group in such a focal position requires a leadership and a program fully aware of all the new forces and interests and insistent demands of a dynamic society. It is important for the medical profession to know that during and since the nineteenth century the world has been revolutionized by science and technology, the development of means of communication, the concentration of population in cities, the rise of concentrated wealth and the prevalence of distributed want and poverty. More important even than all this for medicine are the changes in social attitudes. The old unrestrained individualism is gone. We have suddenly become conscious that as a nation our youth is behind us and that we are in middle age if not beyond it and that we are repeating the history of Europe without learning anything from it. In a land dedicated to democracy we are dimly aware of classes and many are shocked into blind reaction by the simple reassertion of the idea that our government was founded not only by the people but for them.

This is a new world. In medical education we can rightly boast of progress in the application of the physical and biologic sciences. But medicine is a social science dealing with one of society's greatest needs, public and private health, and the line between these two is often faint and wavering. It is a profession of such social importance that it cannot escape the impact of social change. In our modern integrated society every trade and every profession is "affected with the public interest," and none more so than the hitherto highly individualistic medical profession.

What are we as medical educators and leaders doing about it? What we are doing is next to nothing. Some years ago I analyzed typical medical student programs from entrance into high school until they were given a medical degree. I found scarcely a trace of history or any of the social sciences, i. e., political science, economics and sociology, nothing that would help to give them any understanding or interest in the changing world that would condition their whole life. It was a perfect preparation for an unsocial citizen and professional man.

There may be some who think we cover all necessary features of a doctor's social training when we administer the Hippocratic oath and hand him a little pamphlet labeled Principles of Medical Ethics distributed with the compliments of the American Medical Association. Its basis is Perceval's code of 1803 formulated in a time of cut throat rivalry in England, restated in New York in 1848 at the time of an equally bitter fight against homoeopaths and eclectics and little changed in the editions issued by this association since 1903. I am concerned that the young doctors, while retaining all the fine traditions of the profession, shall be sent forth with understanding and open minds and a new conception of service and of their paramount obligation to make more universal the scientific stores of knowledge which fail of application today in such wide areas of public and private health. Need I list as indications of society's demand for this wider application all the measures it is taking from workman's compensation, social insurance, social security and housing, to the more evident public hospitals, public dis-

penasaries, asylums, public school nurses, county nurses, student health services? In all these, many of you have been leaders. They are evidences of the growing concern of the public with matters of health. Medicine as a profession has said that it would welcome the day when matters of health assumed the same universal interest hitherto held by education alone. That is a great ideal. Its realization may be far in the future but mankind, like a great army, is on the march toward it.

The Medical School Survey

DR. HERMAN G. WEISKOTTEN, Syracuse, N. Y.: This article appeared in full in *THE JOURNAL*, March 27, page 1026.

FEBRUARY 15—AFTERNOON

DR. REGINALD FITZ, Boston, in the Chair

Report of the Survey to Individual Schools

DR. WILLIAM D. CUTTER, Chicago: In connection with our studies of the medical schools of the past two years, the Council on Medical Education and Hospitals has had in almost every case a request from the administrative officers of the school for a report of the conclusions of the Council. It would have been our desire to give a report immediately after the inspection but it was impossible in so short a time to prepare a report. We were obliged to wait until the visitation of the schools had been completed before putting into form our conclusions so that they might be returned to the faculties and officers of the schools included in the survey for their benefit and for their information. I will show on the screen a series of pattern maps or graphs covering a number of items of the organization and administration of the institutions of learning. Instead of representing on the graphs the value of any one of these features as determined by a score, there is merely a comparison of one institution with other institutions. These maps are confidential. They will be sent to the executive officers of each one of the schools, showing the conclusions of the Council with respect to that particular institution. They will not be seen by any one else. They merely represent for the benefit of that institution the observations of the Council with respect to these various activities, so that no one else is ever going to see the pattern map that is sent to you except the people to whom you are inclined to show it. It is a purely confidential expression of the conclusions of the Council with respect to the particular school. The purpose in sending these maps is merely to give you the information which the Council has gleaned from study of the various institutions that were included in the survey. No action of the Council is based on this map, and no action will be based on it. It is intended solely for your information and for your guidance.

SYMPOSIUM ON CANCER

The Biology of Cancer

C. C. LITTLE, Sc.D., Bar Harbor, Maine: I should like to bring to attention what might be called the genetic point of view as a basic principle in cancer research. There is no species of domesticated animal in which the genetics is so thoroughly misunderstood as in the case of man, and that situation is likely to continue far beyond our lifetime. The chemist would be helpless in his attempt to analyze unknown material if he didn't have known chemical agents on the shelves of his laboratory to which he could turn as assistance in analyzing the unknown. The biologist, in the past fifteen years, has been given the tools by which he can approximate that result. I believe that by the use of genetics, it has been possible very definitely to measure the variations which occur in the tumor and it has been possible to measure the degree of differentiation possessed by the tumor. It was possible as early as 1922 to show in work Dr. Strong did with me that two tumors which looked exactly alike under the microscope could give very different physiologic effects and the very different genetic ratios. We sent slides to two pathologists and they said they were the same tumors, but we obtained different genetic results after inoculating the tumors. This gave a preliminary and unsatisfactory result, but it shows the relationship of tumors not detected by any physiologic method of analysis.

I have been talking about inoculated tumors and the way in which biologic principles can be used to bring them into the

field of research. The same principle of pure strains holds good in spontaneous tumors. It has been known for years that genetics played an extremely important part in determining whether a given family of animals would or would not develop tumors. The factor of age in connection with spontaneous tumor incidence is interesting. It is known from the statistical material available on human beings that there is a marked difference in age incidence of such types of tumors as those of the female reproductive type, those of the digestive system and those of the skin. It is evident that those types of tumors are biologically different from one another. Although they may have something in common, there are enough different factors to make the mean age of incidence of tumors of the breast and of the uterus different from the tumors of the digestive tract and those of the type of skin tumors which increase in relative incidence up to the duration of human life.

It seems to me that we have a suggestive line of research that will drive us outside of the chromosomes and possibly into the cytoplasm of the egg to find out whether there is difference in sensitivity of this cytoplasm to various internal stimulants which may lie at the base of cancer.

When carcinogenic substances are used in minute quantities that approximate the degree that one might expect to find them present in the body, there are differences that tend to show up in the reaction of the animal to the carcinogenic agent. We do not know the limits to which one may expect these stimulants to occur naturally in the body, but that there is a genetic difference in human material and in mice is undoubted. That this difference in the state of nature is an important difference in determining whether the individual will or will not have a cancer seems to be undoubted. The cancerous change appears to be one to which almost any tissue can be pushed if maltreated and irritated for a long enough period. Sometimes, however, there are natural limits of irritation in the life of the normal mammal.

In experimental medicine today it is largely a deliberate handicap if an institution chooses to use material that is not genetically controlled and not as uniform as it is possible to make it. It is just as antiquated to use mixed material concerning the ancestry of which one knows nothing as it would be to revert to the old methods of surgery.

The Pathology of Cancer

DR. FRANCIS CARTER WOOD, New York: There have been vast changes in our ideas of the causes and nature of cancer in the hundred years since Johannes Müller first studied the crude teasings and scrapings of neoplasms. We are no longer intensely interested in morphology, except as a means of practical diagnosis. Probably all types of human cancer have been seen and described. The only thing left is to codify our knowledge, agree on our nomenclature, and publish the data in convenient form. As a beginning, the International Union Against Cancer has authorized me to prepare a diagnostic atlas of tumors illustrating all the known types of cancer and, so far as possible, their morphologic variants. Opposite the picture of each type will be the synonyms in several languages, which may be subject to change from time to time, though the broad outlines of classification are fairly well established.

The present view is that biology is more important than morphology. The remaining importance of morphology is to be able to inform the surgeon or the radiotherapist what the classified experience of his predecessors has been concerning the life history of neoplasms bearing a certain morphology. I have made certain checks on standard sets of sections, which show that no two pathologists will make exactly the same classification. Unfortunately, large statistics of carefully studied tumors which have been grouped by the same individual are still lacking.

Grouping, on the whole, does not tell the fate of the individual who possesses a tumor but rather the fate of a group of individuals with the same kind of a tumor. It is like insurance statistics. Life tables do not prophesy what will occur to the individual but only to large numbers, and even under these circumstances an epidemic may completely upset the expectation of life of a definite group. These deficiencies are well recognized and attempts have been made by many workers in the field to combine the morphology of the tumor with its position in a

given organ, its extension to nodes and other clinical characteristics into a more useful prophecy as to the fate of the patient. It is of the greatest importance that more of such thoroughly observed material be collected and studied, using all the characteristics on which to base a prognosis.

Morphology has been used to help the radiologists in determining the probable sensitivity of a tumor to radiation. Morphology does not necessarily run parallel with tumor susceptibility, even in neoplasms of exactly the same morphology. The reason for this is that no two tumors, even of the same morphology, necessarily spring from a cell with exactly the same biologic qualities. Certain broad lines are now available. The radiologic differences between the behavior of a basal cell tumor of the skin, its close relative the squamous cell type, and the mixtures of the two form a fairly reliable guide. It is known, for example, that the lymphoblastic group are sensitive to radiation, though such sensitivity is not necessarily correlated with curability, for it is far easier to cure with radiation a squamous cell carcinoma, because of its tendency to remain local, than to obtain one of the rare cures of the sensitive lymphosarcoma. The reticulum cell group of connective tissue tumors are also now known to be sensitive, but they also have the habit of extending rapidly while the primary tumor may disappear under treatment. The undifferentiated types, while more malignant from a surgical standpoint, are usually more sensitive from the radiation aspect, but in neither case does any large body of information exist on carefully observed material. It is well known that the glandular forms of carcinoma are resistant to radiation, those, for example, of the lung and gastrointestinal tract. Even in carcinoma of the uterus there is some disagreement as to the effects on all types. Whether the combination of irradiation with subsequent surgery in this field and also in carcinoma of the cervix offers any better salvage than with irradiation alone is still open to discussion. There is some evidence that it is difficult to destroy all the cells even in the cervical neoplasms of the squamous type and that the five year results are somewhat better if the hysterectomy is done shortly after the radiation treatment. Only future observations will render it possible to obtain reliable figures. There is some contradiction, too, in the cervical neoplasms, for if undifferentiated carcinomas are considered as sensitive and the adenocarcinomas as resistant, the clinical results are not comparable, because the adenocarcinomas may metastasize to the pelvic tissues late and the highly differentiated and smaller celled forms metastasize early. Thus a paradox is obvious; the more malignant type of neoplasm may be more easily curable by irradiation. But here, too, final conclusions await greater experience.

The danger of grouping and its application to sensitivity is the tendency to dogmatism in saying that a group I tumor is resistant and must be operated on while a group IV tumor is sensitive and must be treated with radiation. It is being slowly realized that dogmatism in this field is not always rewarded by good results. For these reasons it is of the utmost importance that our future records of large groups be published accompanied by photographs of typical portions of the growth, so that the results obtained in different clinics may have some basis for comparison. Every hospital pathologist should avoid wordy descriptions of tumors and spend his time in seeing that more sections are prepared and preserved under such conditions of permanence that they will always be available when the final check up comes. Even insurance companies can well afford to demand and file slides of all those applying for insurance who have had an operation for any form of neoplasm whether benign or malignant. It is also essential that enough slides be available so that they can be exchanged, for patients often travel in these days from clinic to clinic and some of the samples that one sees of bad technic are revealing in the impossibility of making a diagnosis from the so-called stained sections.

The experimental use of certain chemicals, both of unknown nature as secreted by parasites and the recently discovered hydrocarbons with which the name of Cook of the Royal Cancer Hospital in London will always be associated, has caused a change in our notions as to the hereditary possibilities. It seems probable that ultimately we may have to give up the idea of genetic relationships of cancer, except such as control the length of life of the animal. The sum total of such experi-

mental work has been to show that no genetic correlation with the initiation of cancer can be discovered and that the only factors which are correlated with the appearance of a neoplasm are the length of life of the animal and the amount of the irritation. We might as well give up saying that we know nothing about the cause of cancer, because we know just as much about it as we do, of the cause of tuberculosis, for instance.

The suggestion is made that because tumors have a variable morphology there must be variable causes, but we know now that a parasitic worm in the liver of the rat will incite seventeen different varieties of tumor, including chondromas and osteogenic sarcomas. We find that dibenzpyrene and methylcholanthrene will produce, as far as one can see, tumors in any organ in which they are known to occur. We are beginning to understand the results of tissue culture, which have shown that the connective tissues of the body contain not a single type of cell but a great variety of cells and so can see an explanation for the extraordinary group of connective tissue tumors that are now appearing. In animals composite tumors are not uncommon. An irritant placed in the breast will cause a carcinoma and at the same time a sarcoma, so there is produced what the Germans term a "collision" tumor. Secondly, cells which have hitherto not been thought to exist in such adult connective tissue of the subcutaneous regions may react to these concentrated stimuli and produce tumors of striated or unstriated muscle, of fat tissue, and of a type hitherto strictly confined to the bones, the osteogenic sarcomas, even including cartilage.

Speaking of these bone types, the injection of radioactive material has now been shown to be a fairly effective means of producing osteogenic sarcomas of various types in the bones of laboratory animals. Radium, mesothorium and thorium dioxide sol have all been shown to be admirably effective in the course of time in this regard.

There has been nothing more interesting lately from a tumor point of view than the discovery by Zondek and Ferguson that teratoid tumors of the testicle can be diagnosed with the Aschheim-Zondek reaction. No doubt all tumors give rise to small amounts of gonadotropic substance, but it is not detectable by the ordinary tests, so this phenomenon is chiefly valuable in checking the nature of suggestive uterine and testicular tumors, and also for prognosis, as a positive reaction points to a recurrence. The ovarian hormones have been accused of many crimes, but gradually sanity is returning and a general agreement seems to have been reached to postpone any further statements until more is known on the subject. The view is gaining ground that the type of tumor is not at all determined by the genetic constitution of the host, as the geneticists are fond of stating, but that it is the cell which yields to the irritant by an abnormal type of growth, a somatic mutation or whatever one chooses to call it; in other words, the formation of a new race of cells that makes the tumor what it is. This fact is beautifully demonstrated even in human pathology. All of us have seen cases of multiple carcinoma. I recall an instance in which a patient had a quiescent basal cell carcinoma, a carcinoma of the gastro-intestinal tract, both of which were relatively benign, and then a melanoma developed, which carried the patient off rapidly. Here were three types of neoplasm in a single body, which certainly was genetically homozygous to itself, and because three different types of cells happened to be irritated and underwent a malignant change, three different types of cell biology were represented in the neoplasms. These are some reasons why those who are doing experimental work are not especially interested in mere morphology. What excuse has a rat to have an osteogenic sarcoma in his liver? It is obvious that if morphology and genetics do not help us, the door is opening for the chemist. When Warburg showed that the cancer cell metabolized dextrose in a different fashion from the healthy, uninjured, homologous cell, he did not explain the cause of cancer, but he explained why a cancer cell can get along under circumstances which the healthy cell finds difficult for life. When Cook discovered the carcinogenic substances and extracted dibenzpyrene from coal tar, he explained a type of cancer that has occurred for many years in human beings and placed in the hands of the laboratory worker a means of obtaining an immense number of primary tumors. The grafted tumors are merely a race of cells under cultivation. The advantage of obtaining by grafting isolated cells of cancer of

various types, at short notice, has resulted in a great change in our ideas, but also, owing to lack of training of those who do cancer research, has produced a good deal of rubbish which has greatly puzzled those not familiar with laboratory technic. Do the medical schools teach anything of what I have spoken? From many years' experience with interns, I would say that they seem to know less of cancer than almost any other subject in medicine, and yet this disease is now the second most important cause of death.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, April 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, May 3. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, June 17-18. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 9. *Examinations.* San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, June 12. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 28-29 (probable dates). *Medical.* Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDaho: Boise, April 6. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, April 6-8, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, April 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames. *Medical.* Iowa City, June 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Medical (Regular).* Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, April 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 20-22. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, April 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEBRASKA: *Basic Science.* Omaha, May 4-5. *Medical.* Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 3-4. Sec., Dr. John E. Worden, Box 630, Carson City.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 12-13. Sec., Dr. Le Grand Ward, Box 693, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical.* Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, March 27, page 1137.

Arkansas November Examination

Dr. A. S. Buchanan, secretary, State Medical Board of the Arkansas Medical Society, reports the written examination held in Little Rock, Nov. 10, 1936. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine.....	(1936)		78.9
Tulane University of Louisiana School of Medicine....	(1935)		81.7

Nine physicians were licensed by reciprocity and one physician was licensed by endorsement from June 20 through October 21. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Tulane University of Louisiana School of Medicine....	(1928)		Texas,
(1935) Louisiana, Oklahoma			
University of Michigan Medical School.....	(1925)		Michigan
Washington University School of Medicine....	(1925),		(1935) Missouri
Memphis Hospital Medical College.....	(1911)		Mississippi
University of Tennessee			Tennessee
Vanderbilt University Sc			Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Cornell University Medical College.....	(1934)		N. B. M. Ex.

Kentucky Reciprocity and Endorsement Report

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports 14 physicians licensed by reciprocity and 3 physicians licensed by endorsement from Aug. 7 through Dec. 22, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine.....	(1935)		Missouri
Chicago College of Medicine and Surgery.....	(1909)		Illinois
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1931)		Maryland
Harvard University Medical School.....	(1917)		Mass.
University of Michigan Medical School.....	(1929)		Michigan
Washington University School of Med. ..	(1930)		Iowa, Missouri
Eclectic Medical College, Cincinnati.....	(1935)		Ohio
University of Cincinnati College of Medicine.....	(1935)		Ohio
Meharry Medical College.....	(1928)		Tennessee
University of Tennessee College of Medicine.....	(1935, 2),		(1936) Tennessee
Vanderbilt University School of Medicine.....	(1935)		Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical "			M. Ex.
Cornell University "			M. Ex.
Vanderbilt Universit			M. Ex.

Tennessee December Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held in Memphis, Dec. 16-17, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Nineteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists.....	(1936)		86.4
Northwestern University Medical School.....	(1935)		82.6
University of Tennessee College of Medicine.....	(1936)		81.5,
82, 82.4, 82.5, 83, 83.1, 84, 84.3, 85.1, 85.6, 86, 86,			86.1, 86.3, 86.8, 87.1
Queen's University Faculty of Medicine.....	(1931)		86.8

Six physicians were licensed by endorsement from November 12 through December 21. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine.....	(1912)		Maryland
Columbia Univ. College of Physicians and Surgeons.....	(1933)		New York
University of Oklahoma School of Medicine.....	(1934)		Oklahoma
University of Nashville Medical Department.....	(1908)		S. Carolina
University of Tennessee College of Medicine.....	(1931)		Mississippi
Medical College of Virginia.....	(1912)		Virginia

Book Notices

Bright's Disease and Arterial Hypertension. By Willard J. Stone, B.Sc., M.D., F.A.C.P., Clinical Professor of Medicine, School of Medicine, University of Southern California, Los Angeles. Cloth. Price, \$5. Pp. 352, with 32 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This excellently printed volume is a condensed statement of the well known facts regarding Bright's disease. It is beautifully illustrated with photomicrographs both in color and in black and white. The style is clear and lucid. The organization and arrangements are logical but there appears to be an overemphasis of classification in an attempt to divide the various types of renal disease into small semidemarked entities. The first half of the book includes a brief historical sketch, classification of Bright's disease, discussion of renal functions and methods of testing these, the water balance of the body, acidosis, uremia, laboratory procedures and pathologic consideration. The remainder of the book is concerned with a discussion of the so-called specific forms of the disease in its various subdivisions. These subdivisions are further separated into acute, second and terminal stages. Appended are brief one paragraph case reports of 140 cases in which necropsies have confirmed the clinical diagnosis. The discussion of the physiology of the kidney is sound but rather brief and sketchy in its presentation. Weakest of all is the discussion of hypertension both independently and in its relation to renal disease. About fifty pages is devoted to those forms of nephritis in which hypertension is a conspicuous problem and/or to hypertension per se. This discussion is inadequate to justify the second half of the title of the book. There appears to be a lack of correlation between the physiologic consideration, phenomena of Bright's disease and its treatment. In some places treatment is considered fully, in others presented most sketchily. The discussion of treatment is probably orthodox everywhere in the sense that it conforms with the general trend of opinion. One fails, however, to find any adequate presentation of the reasons why such treatment, which is advised, should be instituted. On the whole, this book can be considered a good summary of the known or largely assumed facts and theories of Bright's disease, and in no place could a student or nonspecialist be led astray. For the student of renal disease and for the investigator, the book is a bit of a disappointment in that it really presents nothing new.

Trachoma. By A. F. MacCallan, C.B.E., M.D., F.R.C.S., President of the International Organization against Trachoma. Embodying the Hunterian Lecture at the Royal College of Surgeons of England, 1936, on the Surgery and Pathology of Trachomatous Conjunctivitis. Cloth. Price, £1. 1s. Pp. 225, with 19 illustrations. London: Butterworth & Co., Ltd., 1936.

Here is an important piece of work by the foremost trachomatologist of these times and as such must be given due consideration. The book is well printed on a somewhat different grade of paper than is commonly found in American textbooks. The majority of the illustrations are in color and all are well done. After the introduction there are chapters on clinical manifestations, sequelae, complications, differential diagnosis, treatment, pathologic anatomy, epidemiology and historical aspects. A complete author and subject index concludes the volume.

In 1903 MacCallan was called from London to assume charge of the newly started governmental endeavor to control trachoma in Egypt. For twenty-one years he worked and built up an organization which now includes thirty permanent ophthalmic hospitals, fourteen traveling ophthalmic hospitals under canvas, twenty ophthalmic departments in government general hospitals, and thirty-two daily ophthalmic clinics in government schools. These institutions are staffed almost exclusively with Egyptian physicians trained by MacCallan. During 1934, 928,215 new patients were treated at these hospitals, and on them were performed 94,681 operations for trachoma, cataract and glaucoma. Truly a monument of noble proportions.

It would seem presumptuous to question the word of a trachomatologist as eminent as the author, but is it universally accepted that corneal involvement is necessary to establish the diagnosis of trachoma? This point is insisted on by MacCallan, who properly utilizes the advantages of biomicroscopy whenever possible. Tarsectomy, which has been entirely rejected in this

country, is still counted among the therapeutic measures advocated in certain circumstances by the author. Again no mention is made of the well known absence of trachoma among the American Negroes, although it undoubtedly exists among the African Negroes, as shown by an analysis of the distribution of the disease throughout the British colonies.

The book is too full of material to permit of comment on any special phase, material garnered from a decade of rich personal experience. To one less well versed in the treatment of trachoma than the author, the value of the text would be enhanced by somewhat greater attention to therapeutic measures and diagrammatic illustrations of the various operative procedures employed. But the chapters on pathologic anatomy and epidemiology more than make up for any of the minor deficiencies noted. The book is a vast improvement over the author's "Trachoma and Its Complications in Egypt" of 1903, for it contains a thorough digest and bibliographic references to the important work of the past decade. It is particularly pleasing to note the high value placed on Thygeson's work but yet the cautious refusal to accept etiologic conclusions that have not been proved to the author's satisfaction.

As said in the beginning, here is an important book. It must be read by every ophthalmologist who sees or may see even a single case of trachoma; it should form the Bible of the public health medical officers engaged in antitrachomatous campaigns; and it can be studied with profit by every epidemiologist.

Holt's Diseases of Infancy and Childhood: A Textbook for the Use of Students and Practitioners. By the late L. Emmett Holt, M.D., and John Howland, M.D. Revised by L. Emmett Holt Jr., M.D., Associate Professor of Pediatrics, Johns Hopkins University, Baltimore, and Rustin McIntosh, M.D., Carpenter Professor of Diseases of Children, Columbia University, New York City. Tenth edition, revised. Cloth. Price, \$10. Pp. 1,240, with 205 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

The first edition of this volume by the late L. Emmett Holt appeared in 1897. Subsequent editions were revised by John Howland; the present edition was prepared by L. Emmett Holt Jr. and Rustin McIntosh. In the present revision the authors have endeavored as much as possible to retain the personal opinions and attitudes of the original authors. They supplement the text with a bibliography and add much material on pathogenesis. So extensive have been advances in the field of nutrition, the blood and allergy and also on some of the infectious diseases and on endocrinology that certain sections have been rewritten completely and extensive revisions made in others. Perhaps a dozen associates have been called on by the authors for the revision of some of the special sections of this book. Its usefulness is manifest from its record of sales.

Handbuch der mikroskopischen Anatomie des Menschen. Herausgegeben von Wilhelm v. Möllendorff. Band V: Verdauungsapparat. Teil 3: Zähne, Darm, Atmungsapparat. Bearbeitet von W. Bargmann et al. Paper. Pp. 908, with 426 illustrations. Berlin: Julius Springer, 1936.

The von Möllendorff Handbuch in seven volumes constitutes a comprehensive and reliable review of the results of research in microscopic anatomy up to the present time. This book is the third part of the fifth volume and it deals with part of the digestive apparatus, namely, the teeth and the intestine, and also with the respiratory apparatus. The section devoted to the intestine has been written by Dr. Viktor Patzelt of Vienna and includes 448 pages and 169 illustrations. The review of literature is exhaustive and is arranged under the logical headings (1) general structure, including evolution and functional differentiation, (2) development, (3) constituent parts of the intestine—their evolution and function in the animal series, and (4) the contents of the intestine. The section on the teeth is written by Dr. Josef Lehner and Prof. Hanns Plenck of Vienna. It includes 260 pages with 119 illustrations. It deals with (1) gross anatomy, theories of origin and of the complex form of teeth; (2) phylogenesis; (3) development of the teeth and of the jaw, under the headings of enamel, dentin, cement, pulp and periodontal membrane. The section on the respiratory apparatus is by Dr. R. Heiss of Königsberg. It includes ninety pages and 101 illustrations. There follows an appendix on the lung alveoli by Dr. Bargmann of Zurich covering sixty pages, with thirty-seven illustrations. The review of the literature is thorough and the bibliography accompanying each section is a valuable contribution. At the end there is a twenty-five page index of authors and a twenty-three-

page index of subjects considered. The book constitutes a storehouse of information, covering the microscopic anatomy of the vertebrate series of animals. It will be an exceedingly valuable and almost indispensable reference book for any one wishing to study the literature on any particular structure in the field covered by the book. The format and the illustrations are in accord with the pleasing and satisfactory manner that is customary with the publications of Julius Springer.

Oral Diagnosis and Treatment Planning: A Text for the Dental Student; A Reference Book for the Practitioner and Medical Student. By Kurt H. Thoma, D.M.D., Charles A. Brackett Professor of Oral Pathology in Harvard University. Cloth. Price, \$6. Pp. 379, with 533 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

The subtitle properly describes this book as a text for the dental student, a reference book for the practitioner and medical student. For the former it is indispensable; in addition it is a handy and usable guide for both physicians and dentists in their efforts to identify and evaluate the diseases and lesions of the oral cavity. It begins with a brief statement of instructions for its use. Part I, on the theory of diagnosis and treatment planning, is covered in twenty-one pages. Part II, seventy-five pages, deals with methods of examination and includes the preparation of the clinical history, general and special examinations, laboratory tests and roentgenographic technic as well as interpretation. The directions for all examinations and tests are more than adequate. Part III comprises the bulk of the text and is concerned with the clinical diagnosis of dental and oral diseases. The organization of this part is such that it is quite possible, given even a single symptomatic clue, to set up a diagnostic problem that is relatively simple so that the chances for a correct solution are materially enhanced. There is an eleven page bibliography, which has been carefully selected to include the best in recent literature bearing on the subject. The index is unusually complete and is arranged to facilitate rapid location of pertinent matter in the body of the book. The copious illustrations are excellent and highly helpful. Their relatively small size does not detract from their value, and this has made it possible to cover visually a tremendous amount of subject matter without unduly increasing the size of the book. The author has made an important and helpful contribution to the art of oral diagnosis.

Essentials of Modern Medical Treatment. By Vincent Norman, M.D., M.R.C.P., F.R.C.S. Cloth. Price, 10s. 6d. Pp. 200. London: Hutchinson's Scientific and Technical Publications, 1936.

This aims to provide the busy general practitioner with a work for ready reference on treatment. It is surprising how much practical information is packed into a small volume. Ripe experience shines through many of its maxims; e. g., "In sciatica do not attempt to stretch the nerve by extending the leg; it does more harm than good." Or, for obstinate cases of trigeminal neuralgia, "consider injection of 30 minims of alcohol, 90 per cent. This should only be done by an expert, and in any case risk of subsequent blindness is considerable. Most satisfactory treatment for intractable cases is partial ganglionectomy, which leaves out the inner and ophthalmic fibers, and so avoids risk of keratitis." In epilepsy "the ketogenic diet is only of limited benefit." In Ménière's disease, phenobarbital is recommended for the prevention of the attacks. In connection with the therapy of paralysis agitans the interesting statement is made that larger doses of scopolamine may be given if combined with pilocarpine. In the therapy of children's convulsions the author pins his faith on the warm, not hot, bath, vigorous rubbing of the skin, a warm soapuds enema, and a dose of castor oil. He does not advise bromide and chloral, as he finds them too depressing. These examples, culled at random from chapter I on diseases of the nervous system, may suffice to show how rich in information on therapy this book is. Unfortunately, the author's training in prescribing has come down from the days when nearly all medicine had to have a horrible taste. With the frequent administration in liquid dosage form of quinine sulfate, strychnine or ferric chloride, his patients certainly have a bitter and rather nasty time of it. There being no such thing as the "Council on Pharmacy and Chemistry" in Great Britain, the author may possibly be excused if his pages reveal a greater partiality to proprietary medication than would be considered desirable in this country in a scientific book on medical treatment.

Urological Roentgenology: A Manual for Students and Practitioners. By Milley B. Wesson, M.D., and Howard E. Ruggles, M.D., Roentgenologist to University of California Hospital. Cloth. Price, \$5. Pp. 269, with 227 illustrations. Philadelphia: Lea & Febiger, 1936.

This is an excellent volume for the beginner in urography, as it contains a remarkable collection of well reproduced pyelograms. Many of these urograms will be of interest to the most expert urologist also. This book shows the result of having been long in preparation, however, as certain advice and discussions are now obsolete. The expense of using intravenous preparations for retrograde pyelograms is discussed. Twenty per cent hippuran costs about 1 cent per cubic centimeter, which makes the medium for the average pyelogram cost from 10 to 15 cents; this is certainly not excessive. The great value of excretory urography in certain conditions is not properly stressed. Certainly this is of use in cases other than those in which cystoscopy is impossible. The text is not of the same high quality as the illustrations, and one doubts whether discussion of workmen's compensation is proper in a book entitled "Urological Roentgenology." The subject as a whole, with the exception of chronic renal infections, is well covered. The last illustration is printed upside down for no apparent reason. A good index is appended.

Experimental Studies on a Transmissible Myelomatosis (Reticulosis) in Mice. By Otto Kaalund-Jørgensen. Paper. Price, 12 kronor. Pp. 142, with 25 illustrations. Copenhagen: Levin & Munksgaard, 1936.

The fact that leukemia occurs in mice was observed by Eberth in 1878. Since that time there have been numerous studies of leukemia, lymphosarcoma and leukosarcoma in the smaller laboratory animals. Of late it has been found that lymphatic and myeloid leukemia can be transmitted by inoculation in inbred strains of mice but is possible only with living cells and in the author's experiments mainly in animals that were previously irradiated. The conclusion has been drawn by Furth and others from their studies that lymphomatosis and also myelosis represent a neoplastic process. The author, while he surveys fully the conclusions of others, has confined his own observations to a leukemic disease in which myeloblasts are abundant in the blood, a myelomatosis in contrast to Furth's myelosis, in which myelocytes predominate. The pathologic changes in the blood and organs of the mice with myelomatosis were carefully studied. Curiously the spleen is not enlarged in this condition though it is regularly enlarged in the lymphomatoses. The most abundant pathologic cells in the blood are, as has been said, classified as myeloblasts. No peroxidase reaction was given by these cells, although the occasional myelocytes and ordinary leukocytes gave positive reactions. It is possible that this lack of reaction is due to the extreme immaturity of the cells. The author regards the type of myelomatosis studied as a systemic neoplastic process intimately associated with the reticulum. The volume ends with a long bibliography and a series of twenty-five drawings and photographs and forms an excellent contribution to a subject which, in spite of the large amount of work that has been done on it in the last few years, is still obscure in many aspects.

Skin Diseases in Children. By George M. MacKee, M.D., Professor of Clinical Dermatology and Syphilology, New York Post-Graduate Medical School, Columbia University, New York, and Anthony C. Cipollaro, M.D., Associate in Dermatology and Syphilology, New York Post-Graduate Medical School, Columbia University, New York. Cloth. Price, \$5.50. Pp. 345, with 153 illustrations. New York & London: Paul B. Hoeber, Inc., 1936.

This book can well be recommended for what it is intended to be, a practical useful edition for practitioners in general medicine. It is a clinical presentation throughout, the anatomy, physiology and pathologic descriptions being omitted, and the authors also avoided emphasis on precise dermatologic refinements. For these the reader is referred to larger dermatologic textbooks. The classification employed is a convenient one; there is a chapter on diseases in which pyogenic bacteria are etiologic factors, and others concern diseases due to fungi, drug eruptions, the eczema group, erythema group, new growths and congenital defects. The discussions are in good balance, with proper emphasis on the diseases that are encountered most frequently, and they are described plainly and with clear word pictures. The exanthems are omitted. The treatment is orthodox, and throughout there are prescription formulas that

can be compounded readily by any pharmacist. The illustrations, all in black and white, are well selected. Altogether the book is a sound introduction to practical clinical dermatology, with especial emphasis on conditions that are encountered in children.

La diabetes en la practica. Por el Dr. Francisco Gnecco Mozo. Paper. Pp. 107. Bogota: Editorial Cromos, 1936.

This is intended for medical students, especially of Colombia. The purpose of the author is to simplify the whole subject of diabetes, a knowledge of which was previously available to them only in some gigantic treatise on the disease. In opening the subject the author prefers to substitute, in preference to a long list of symptoms, numerous clinical cases for clarification and diagnosis of diabetes, following this by a summary of local disturbances referable to diabetes skin, gastro-intestinal and genito-urinary tracts, neurologic, cardiovascular and respiratory systems and trophic changes. This approach to the subject is original and excellent because it recognizes the great and confusing variety of symptoms by which the disease may be first manifested. In the etiology of diabetes he speaks of senile lassitude of the pancreas because of the greater frequency of diabetes in persons over 40 years of age. He fails to discuss satisfactorily hepatic glycogen disturbances as a possible contributing etiologic factor. One is under the impression that only the pancreas is at fault in diabetes. He also speaks of two forms of diabetes, that of youth with rapid evolution and that of mature age of longer duration, a confusion because, while true as a generalization, it is not necessarily true in every case. The author unfortunately speaks of the drugs Sintalina-B and Copalchi in the treatment of "mild cases of diabetes" and affirms their efficacy in doses advocated by their manufacturers. That no drug on the market today can control diabetes, clinical research amply shows. On the other hand, he does not speak of protamine insulin, the new slow acting insulin compound, nor does he describe sufficiently the effects of plain or ordinary insulin on the carbohydrate metabolism. Diets are not thoroughly gone into. Since this manuscript is for students, it should be more thorough in describing disturbances of carbohydrate metabolism and the complications of diabetes. The author hopes that the good seed of curiosity will be sown in this manuscript so to inspire later on a greater and more worthy work in diabetes. No doubt this will happen. On the whole, students will acquire much from this manual that will be helpful to them.

Digestion and Health. By Walter B. Cannon, George Higginson Professor of Physiology, Harvard Medical School. Cloth. Price, \$2. Pp. 160, with 14 illustrations. New York: W. W. Norton & Company, Inc., 1936.

Dr. Cannon is internationally known as a contributor to our knowledge of physiology. He is known for his ability in expressing his knowledge equally to scientific and to public audiences. In some fundamental essays, first developed in lecture form, he traces the nature of appetite and hunger, the nature of thirst, our knowledge of digestion and bodily vigor and the relationship of pain, worry and excitement to indigestion. In an epilogue he shows the importance of digestion in the body economy, adding it to the lungs, the heart and the brain as the fundamental systems of the human body.

It is significant that the lectures which form the basis of this volume are characterized as the Beaumont lectures, thus adding still further to the fame of that American founder of our knowledge of the physiology of digestion. The lectures were given in connection with the celebration of the publication of Beaumont's book on this subject.

Differentialdiagnose in der Inneren Medizin. Lieferung 2. Von Prof. Dr. Med. O. Naegeli, Direktor der Medizinischen Universitätsklinik, Zürich. Paper. Price, 9.60 marks. Pp. 217-414, with 42 illustrations. Leipzig: Georg Thieme, 1936.

This volume of Naegeli's differential diagnosis continues the same high quality of condensed discussion that was present in the first volume reviewed in THE JOURNAL, July 11, 1936, page 156. The present volume includes presentation of the differential diagnosis of diseases of the abdomen, lungs and pleura. Diseases of the abdomen are divided into (1) abdominal pain, (2) abdominal resistance, (3) inflammatory lesions, (4) stenoses of the gastro-intestinal tract, (5) gastric diseases (ulcer, carcinoma and gastritis), (6) constitutional disorders, (7) rare gastric disorders, (8) achylia, (9) appendicitis, (10)

the peritonitides, (11) diseases of the bowel and (12) diseases of the pancreas. The discussion of gastric disease receives disproportionate emphasis (thirty-four pages); all the rest of the gastro-intestinal tract is treated in but eighteen pages. The discussion of pulmonary tuberculosis is the least impressive portion of the work. Naegeli writes well and emphatically, but one again receives the impression that the patient is considered as a loosely correlated collection of systems rather than a finely correlated whole. The volume can be recommended as a reference work revealing modern European thought and methods.

The Truth About Bright's Disease. By William R. Ohler, M.D. Cloth. Price, \$1. Pp. 80, with one illustration. Cambridge: Harvard University Press, 1936.

This little book, which can easily be read in an hour, presents the substance of a popular lecture recently delivered at the Harvard Medical School. Since the book is intended for laymen, its language is not technical. It should prove instructive to intelligent patients who have nephritis, or to parents of afflicted children. Dr. Ohler considers only the common forms of "Bright's disease": that attributable to inflammation or to bacterial invasion, and that attributable to degeneration or sclerosis of small arteries. Comments are made on the structure and function of the kidneys, the nature of normal and abnormal urine, the scope of Bright's disease and its course, and uremic poisoning and dropsy. Also briefly discussed are diet and dietary management, Bright's disease in pregnancy, and the treatment of acute and chronic nephritis.

The Aims and Methods of Medical Science: An Inaugural Lecture. By John A. Ryle, M.A., M.D., F.R.C.P., Regius Professor of Physic in the University of Cambridge. Paper. Price, 75 cents; 2s. Pp. 44. New York: Macmillan Company; Cambridge: The University Press, 1935.

This little brochure contains the lecture delivered by John A. Ryle on the occasion of his inauguration as regius professor of physic in the University of Cambridge. It is a scholarly discussion, with some criticism and some forecast of the ever present and ever important topic announced by the title. Professor Ryle is well aware of the value of research by specialists who devote all their time to the laboratory or ward. It is not surprising, however, that he who for many years has been in active practice in the hospital and the home should contend for the worth also of scientific observation by the one whose primary function is that of the practitioner. The ideas of the lecture are the same as those expressed in his larger publication, *The Natural History of Disease*, which was reviewed in THE JOURNAL Sept. 5, 1936.

Wall Chart and Code for Lungs Examination. By H. N. Chatterjee, B.Sc., M.D. Paper. Price, 2s.; Re. 1/8. Calcutta: Thacker Spink & Co., Ltd., 1933.

This wall chart, 13 by 17 inches in size, is a handy outline for chest clinics. It lists the apparatus needed for lung and throat examinations and then describes the position of the patient. There is a brief description of abnormalities observed on inspection, detection of abnormalities on palpation, sounds on percussion, and auscultatory sounds. In the center of the chart is presented a code of markings for the chest specialist, including auscultation and percussion signs. The chart is a useful guide for training physicians in the systematic and thorough examination of the lungs.

The Diagnosis and Treatment of Pneumonia. By Campbell P. Howard, B.A., M.D., C.M., Physician to the Montreal General Hospital, Montreal, Canada. Henry A. Christian, M.D., Sc.D., LL.D., General Editor of the Series. [Reprinted from Oxford Monographs on Diagnosis and Treatment.] Cloth. Price, \$6.50. Pp. 373. New York: Oxford University Press, 1936.

This reprint from the Oxford Monographs on the diagnosis and treatment of pneumonia is a valuable compendium of the literature and contains chapters on the history, incidence and etiology, infection and immunity, morbid anatomy, symptomatology, physical signs, complications, clinical types and diagnosis, prognosis, prophylaxis and treatment of lobar pneumonia. There is a chapter on bronchopneumonia and one on the common cold. The latter contains some of the more recent work on the virus. The bibliography is excellent. A survey of our present knowledge of pneumonia may be found in this volume.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Societies: Contract Practice in Relation to Professional Ethics.—The plaintiffs, one as its manager, were employed by the Associated Physicians Clinic, operated by two members of the King County Medical Society. This clinic made contracts with business firms of Seattle to furnish necessary medical, surgical and hospital care to employees of such firms at a stipulated rate per month per capita. In April 1933 the King County Medical Society organized the King County Medical Service Corporation, described in the record as "identical in its plan and operation with that of the Associated Physicians Clinic and the other independent clinics." The following August, the medical society adopted an amendment to its by-laws, providing for the censure, suspension or expulsion of a member—

who shall engage in contract practice unless the same shall previously have been authorized by the Board of Trustees of this Society, or who as physician or surgeon shall serve on the staff of or perform work for the patients of, or shall perform work in any institution or group or organization unless such services or work shall previously have been authorized by the Board of Trustees of this Society.

Shortly thereafter the society, it was alleged, threatened to expel the physicians who operated the Associated Physicians Clinic unless they abandoned their contract practice. The physicians apparently continued to engage in contract practice and on March 19, 1934, written charges were filed with the society against them, charging a violation of the by-law quoted. The two physicians then terminated their contracts with the plaintiffs, who thereupon instituted the present suit against the King County Medical Society, the King County Medical Service Corporation and certain officers, trustees and members thereof, alleging that the defendants had caused a breach of the contract between the Associated Physicians Clinic and the plaintiffs. The trial court sustained a demurrer interposed by the defendants, on the ground that the complaint failed to state a cause of action, and the plaintiffs appealed to the Supreme Court of Washington.

An employee, said the Supreme Court, has no right of action against an individual or group of individuals who organize to compete with his employer. The organization of the King County Medical Service Corporation by the King County Medical Society as a competitor of the Associated Physicians Clinic, therefore, did not create a cause of action against the defendants. Furthermore, the constitution, charter and by-laws of the medical society constituted a contract between the members of the society enforceable in the courts if not immoral or contrary to public policy or the law of the land. The two physicians, as members of the medical society, were required to obey the by-laws of the society or subject themselves to the penalty of suspension or expulsion from the society, and it is not material how selfish or unselfish the objects of the medical society may be. That the medical society had the right to adopt the by-law with respect to contract practice cannot be questioned. Whether such by-law was just, reasonable or wise is a question of policy which concerns only the medical society and its members. The society, in the enforcement of its by-laws for the direct purpose of benefit to itself and to its members, is not answerable for damage incidentally resulting to a third person. So long as membership in the medical society continues, the member can be compelled under his contract with the society to obey its laws, rules and regulations or suffer the penalty of fine, suspension or expulsion.

The enforcement of a by-law such as the one here involved, continued the court, does not amount to unlawful coercion. In *Seymour Ruff & Sons, Inc. v. Bricklayers', etc., Union*, 163 Md. 687, 164 A. 752, it was said:

The decisions are practically in harmony in holding that it is within the power of labor unions, and it is lawful for them, to instruct or order their members not to accept employment with an individual, or to continue in such person's employment, where the action of a union is justifiable in the

sense that it is to promote the welfare of the members of the union. Accordingly, the enforcing of a by-law forbidding members of the union to serve one who has broken a contract with its members does not amount to intimidation. Neither a fine or other disciplinary action under such by-law would be unlawful as to members who voluntarily subject themselves to the provision of such by-law. They are left free to enter the employment of the prescribed employer, although practically they are compelled to choose between the benefits of such employment and membership in the union.

In *Booker & Kinnaird v. Louisville Board of Fire Underwriters*, 118 Ky. 771, 224 S. W. 451, 21 A. L. R. 531, the court said:

In almost every profession and every business there are associations or lodges or boards, organized by persons engaged in particular lines of industry or following certain professions, that have for their sole purpose the protection and promotion of the best interest of the business or profession in which they are engaged. And bodies like these, acting in a collective capacity, may, in a quiet orderly way when their interests demand it, refuse to deal with or have any business relations with any other person or persons they choose, although the effect of such combined action is to boycott the objectionable person. . . .

An association, in pursuing its legitimate objects, has the right to coerce a member by fine, suspension or expulsion, and the association will not, nor will its members, be liable in damages to those who may be directly or indirectly injured by such efforts. So long as a member remains in the association, he is subject to the coercive effect of a penalty exacted for breach of a by-law of the association. If he does not desire to abide by the obligations of his contract of membership, he may abandon his membership. No rights of the plaintiffs in this case, who were nonmembers, were invaded by the medical society when it established its code of ethics and insisted on compliance therewith through threat of expulsion of an offending member, and the enforcement of solidarity by threat of expulsion of the two physicians created no cause of action for the incidental damage resulting to the plaintiffs.

The judgment of the trial court for the defendants was therefore affirmed.—*Porter et al. v. King County Medical Society et al.* (Wash.), 58 P. (2d) 367.

Medical Practice Acts: Practice of Medicine by Insurance Company.—The Benjamin Franklin Life Assurance Company submitted to the state insurance commissioner of California for approval an insurance policy indemnifying against loss by reason of medical and hospital expenses occasioned by disease or injury suffered by the insured. The policy provided that the insurance company would reimburse the insured for actual expenditures made or obligations incurred for services rendered by legally qualified physicians, optometrists, hospitals, ambulances, pharmacies and x-ray medical laboratories, "approved and designated by the Policy-Holders Committee of the Company for the benefit of the Insured." In the application for the policy, the applicant authorized the policyholders committee "to approve and designate for me, during the life of the policy, the renderers of the services under the terms of the policy for which I am applying." The policy further provided that if the insured placed himself under the treatment or care of any person other than those approved and designated by the committee he thereby forfeited any rights to reimbursement for expenses in connection with such treatment or care. The insurance commissioner refused to approve the policy, and the company instituted mandamus proceedings to compel approval. The trial court gave judgment for the insurance company, and the insurance commissioner appealed to the district court of appeal, second district, division 1, California.

The insurance commissioner contended that the policy violated the medical practice act of California and that he should not be compelled to approve a policy the terms of which were unlawful. The court called attention to the fact that neither a corporation nor any other unlicensed person or entity may engage, directly or indirectly, in the practice of medicine. The insurance company urged that the policy did not undertake or agree to furnish any medical or other services to its members, nor undertake to employ any one to furnish such services, nor undertake to pay compensation to any person who furnished medical or other services. At the most, it was contended, the policy undertook to reimburse a policyholder the cost and

expenses incurred by him for medical and other services designated in the policy and such reimbursement was payable directly to the policyholder himself. While all this is literally true, the court said, that which the company as such cannot lawfully do it requires its members, by means of a contract with such members as individuals, to accomplish for it through the medium of a so-called policyholders committee, which in fact is not a committee of the policyholders but a committee of the company. The selection and designation of physicians by this committee is therefore a selection and designation by the company. The company thereby undertakes to do indirectly what it cannot do directly. If in its inception, said the court, it was not the plan of the company to circumvent the medical practice act, it is a coincidence that the physicians designated by the committee were to be so well protected, for in that connection the policy does not provide that the insured shall be compensated for losses covered by the policy, but that the insured shall be reimbursed. In other words, the insured is to get nothing until the physician is paid. The policyholder is not accorded the privilege of presenting his claim, collecting the amount and then paying the doctor. Under such circumstances it is evident that the physicians to be designated by the committee of the company are to receive equal, if not first, consideration in the dispensing of benefits. The company's plan, although designated insurance, plainly provides for the sale of medical services, which is the practice of medicine. The contention of the insurance commissioner, therefore, that the company under the guise of an insurance company proposed to engage in the practice of medicine must be sustained. The judgment of the trial court for the company was therefore reversed.—*Benjamin Franklin Life Assur. Co. v. Mitchell, Insurance Com'r (Calif.)*, 58 P. (2d) 984.

Physical Examinations: Examining Physician Appointed by Court; Scope of Examination.—A Florida statute authorizes the court to appoint a physician to examine the plaintiff in a personal injury action when requested to do so by the defendant. The statute, said the Supreme Court of Florida, contemplates any and every kind of physical examination or test that may be deemed necessary or essential to ascertain the physical condition of the person examined. Even in the absence of statute, courts have inherent power to order a physical examination of the plaintiff in personal injury cases by a competent physician when such an examination is necessary to ascertain the nature, extent or permanence of the injuries. If the appointed physician determines that a microscopic or bacteriologic examination is necessary, and he cannot make such examination himself, he may have it made by a competent technician, pathologist or toxicologist or by another physician. He may send specimens to adequately equipped laboratories.

The report, however, of a chemist, bacteriologist or laboratory technician as to the result of his examination is not admissible in evidence. The person who made the examination, if he is qualified as an expert, may testify as to what it showed. A witness may qualify as an expert who is shown to have sufficient knowledge, whether gained from books, experience or experiments or other reliable sources, to make his opinion of value, and the trial court is vested with discretion in determining when such knowledge is exhibited. A physician appointed by a court cannot testify as to the nature and extent of an injury based solely on the report of an examination made to him by a technician or pathologist. The technician or pathologist must first testify as to the result of the examination and the physician may predicate his opinion on such testimony.—*Deffer v. Walker (Fla.)*, 168 So. 810.

Workmen's Compensation Acts: Compensability of Asbestosis.—Where the evidence shows, said the Supreme Court of North Carolina, that an employee is suffering from asbestosis arising out of and in the course of employment and that such disease was not caused by accident, the injury results from an occupational disease and compensation under the workmen's compensation act was properly denied by the industrial commission.—*Savink v. Carolina Asbestos Co. (N. C.)*, 186 S. E. 258.

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Association for the Study of Neoplastic Diseases, Philadelphia, April 9-10. Dr. E. R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Pediatric Society, University, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- Arizona State Medical Association, Yuma, April 1-3. Dr. D. F. Harbridge, 15 East Monroe St., Phoenix, Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Florida Medical Association, St. Petersburg, April 5-7. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.
- Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- Nebraska State Medical Association, Omaha, May 11-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.
- Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
- South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
- South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
- Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulters, 706 Church St., Nashville, Secretary.
- Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
- Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.
- West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

6: 257-292 (Feb.) 1937

- Factors in Automobile Accidents: Fatigue, Disease and Alcoholic Beverages. S. Harris, Birmingham.—p. 257.
Hypertension Without Edema. P. Clayton, Russellville.—p. 265.
Some Points in Differential Diagnosis of Common Lung Diseases. C. Lull, Birmingham.—p. 267.
Practical Suggestions in Pediatrics. J. J. Repa, Montgomery.—p. 270.

American Heart Journal, St. Louis

13: 129-256 (Feb.) 1937

- Dissecting Aneurysm of Aorta: Clinical and Anatomic Analysis of Nineteen Cases (Thirteen Acute) with Notes on Differential Diagnosis. R. E. Glendy, B. Castleman and P. D. White, Boston.—p. 129.
*Electrocardiographic Changes in Normal Adults Following Digitalis Administration. K. Larsen, F. Neukirch and N. A. Nielsen, Copenhagen, Denmark.—p. 163.
Auricular Fibrillation with Congestive Failure and No Other Evidence of Organic Heart Disease. I. C. Brill, Portland, Ore.—p. 175.
Use of Chest Leads in Clinical Electrocardiography: I. Normal Variations. E. Sorsky, Fresno, Calif., and P. Wood, London, England.—p. 183.
*Heart Disease Among Seamen. H. Arenberg, Ellis Island, N. Y.—p. 197.
Diphase QRS Type of Electrocardiogram in Congenital Heart Disease. L. N. Katz and H. Wachtel, Chicago.—p. 202.
Extreme Cardiac Enlargement. J. S. Golden and W. A. Brams, Chicago.—p. 207.
Variations in Electrocardiographic Form of Experimental Ventricular Ectopic Beats Induced in Monkey and Dog. D. I. Abramson, Brooklyn; L. N. Katz, Chicago; S. Margolin, New York, and R. Lourie, Brooklyn.—p. 217.
Displacement of Esophagus by Cardiac Lesions Other Than Mitral Stenosis. A. Babey, Brooklyn.—p. 228.

Electrocardiographic Changes in Normal Adults Following Administration of Digitalis.—Larsen and his associates investigated the effect of therapeutic doses of digitalis in fifteen normal young adults on each of the different parts of the electrocardiogram. A relative shortening of the QT interval was observed after administration of digitalis. This is in agreement with the demonstration by Wiggers and Stimson of a shortening of the systole following the administration of strophanthin to vagotomized dogs, whose heart rate was kept constant through electrical stimulation of the atrium. The changes in the height of the T waves are not in agreement with the observations of other investigators. The T waves became lower in one or more leads in fourteen cases and remained unchanged in one. The other changes in the electrocardiogram observed were found in only a few individuals. The heart rate became slower in nine and the conduction time increased in four cases. In two of the latter cases the PQ interval was above 0.2 second and the length of the interval varied with the respiratory phase. Therefore the conclusion is drawn that different individuals may behave differently toward the same dose of digitalis. The electrocardiographic changes were found to persist up to a period of about one month, a fact that must be considered in interpretation of electrocardiograms from patients who have received digitalis. Electrocardiographic changes were noticed, at the earliest, two hours after ingestion of the digitalis.

Heart Disease Among Seamen.—Arenberg points out that of about a million alien seamen entering and leaving the ports of the United States yearly one half pass through the port of New York. Heart disease is the leading cause of death among seamen, as it is among other groups of the population. Of 485 cases of heart disease, including fifty necropsies, selected from more than 5,000 seamen patients who had been subjected to a special cardiovascular examination regardless of the ailments for which they were admitted to the hospital, forty-five

were not Caucasian. About 41 per cent of the group were native Americans, representing almost every state in the Union, and 59 per cent were foreign, coming from all parts of the world. Of the 485 patients, 130 had active or latent syphilis; 44 per cent of these had cardiovascular syphilis. The hypertensive group was the largest, totaling 202 patients. Their age extremes were 29 and 76 years, with the greatest number in the fifth and sixth decades of life. In the rheumatic group there were 102 cases. Only a small number were from the tropical or subtropical regions, while fifty of fifty-six Americans were from the Northeastern states. Sixty-nine had histories of rheumatic fever, and eleven histories of chorea. The age extremes were 19 and 62 years, the greatest number being in the third and fourth decades of life. There were twenty-seven asymptomatic patients in this group, and twenty-one had latent or active syphilis, while twenty-three had auricular fibrillation. In the atherosclerotic group were included all cases of coronary disease, coronary thrombosis, myocardial damage, sclerosis of the aortic valve and nonsyphilitic aneurysm, of which there were eighty-eight. The tropical and subtropical countries were almost entirely unrepresented. The age extremes were 37 and 75 years. The greatest number of cases occurred in the sixth and seventh decades. In contrast to the other groups there were only twelve asymptomatic cases. There were fifty-seven patients in the cardiovascular syphilitic group, fifty-five of whom had positive serologic reactions and two of whom had histories of syphilis with negative reactions. There were eleven asymptomatic cases. The age extremes were 26 and 68 years. There were eight patients with aneurysm, only two of whom gave a history of antisyphilitic treatment prior to this observation. The miscellaneous group of thirty-six cases included aortic insufficiency, auricular fibrillation, congenital cardiac lesions, adherent pericarditis, bacterial endocarditis, chronic cor pulmonale, thyroid heart conditions and cardiac hypertrophy of undetermined cause. Hypertension seems to be more frequent among seamen than among other groups in New York, and less frequent than it is in the Northwest. Rheumatic heart disease is about as frequent as among the general population, but American seamen are apparently more susceptible to it than seamen from other countries. The frequency of cardiovascular syphilis among seamen is from two to three times as great as that among adult males of the general population.

American Journal of Anatomy, Philadelphia

60: 185-340 (Jan. 15) 1937

- Development of Cardiac-Coronary Circulatory System. J. B. Goldsmith and H. W. Butler, Oklahoma City.—p. 185.
Growth of the Eye in Three Strains of the Norway Rat. H. H. Donaldson and Helen Dean King, Philadelphia.—p. 203.
Studies of Suprarenal Glands of Dogs: I. Comparison of Weights of Suprarenal Glands of Mature and Immature Male and Female Dogs. D. D. Baker, New Orleans.—p. 231.
Observations on Living Mammalian Lymphatic Capillaries: Their Relation to Blood Vessels. E. R. Clark and Eleanor Linton Clark, Philadelphia.—p. 253.
Complex IV in Dog, with Special Emphasis on Relation of Ultimobranchial Body to Interfollicular Cells in Postnatal Thyroid Gland. M. C. Godwin, Ithaca, N. Y.—p. 299.

American Journal of Clinical Pathology, Baltimore

7: 1-104 (Jan.) 1937

- A Clinical Pathologist for Every Approved Hospital. P. Hilkwitz.—p. 1.
Economic Aspects of the Hospital Laboratory. R. A. Kilduffe, Atlantic City, N. J.—p. 9.
*Efficiency of State and Local Laboratories in Performance of Serodiagnostic Tests for Syphilis. T. Parran, Washington, D. C.—p. 20.
Method for Determining Optimal Dose and Sensitivity of Antigens Used in Wassermann Test. F. Boerner and Marguerite Lukens, Philadelphia.—p. 33.
Universal Electroscometer. W. G. Exton, Newark, N. J.—p. 42.
Pathology of Newer Commercial Solvents. A. V. St. George, New York.—p. 69.
Rapid Methods for Preparing Paraffin Sections of Tissues. Ruth C. Wanstrom, Ann Arbor, Mich.—p. 78.
Quantitative Isolation of Ethyl Alcohol from Tissues of Alcoholics. A. O. Gettler and H. Siegel, New York.—p. 85.

Efficiency of State and Local Laboratories in Performance of Serodiagnostic Tests for Syphilis.—Parran states that the study of the committee on the evaluation of serodiagnostic tests for syphilis reveals that in some of the state and local laboratories the serologic testing does not compare

favorably with the results achieved in the laboratories of the originators of the methods. On the other hand, in other state and local laboratories the results achieved are at least comparable to those obtained with the control tests. An efficient serodiagnostic test for syphilis should possess specificity of 100 per cent. Any test that yields even 1 per cent of false positive reactions should be so modified as to increase its specificity, even with some slight sacrifice of sensitivity. The examination of the clinical records of the presumably syphilitic donors in this study again emphasizes the fact that a serologic diagnosis of syphilis unsupported by history or clinical evidence should never be made on the basis of a single positive blood reaction. If a positive blood test is obtained in a person who presents no history or clinical evidence of syphilis, the test should be repeated in the same laboratory or in another laboratory, two or more different tests being utilized. The studies made by this committee show that, if two tests are to be performed, it is immaterial whether two efficient complement fixation tests, two efficient flocculation tests or a combination of one efficient flocculation test and one efficient complement fixation test is selected. It is satisfactory to report the results of qualitative tests as merely positive, doubtful or negative. In this way the confusion arising from the use of various symbols is avoided. The directors of laboratories performing serodiagnostic tests for syphilis should have, and should avail themselves of, the opportunity of comparing their results with those of well qualified serologists in other laboratories performing the same test on comparable samples from known syphilitic and presumably nonsyphilitic individuals. The committee recommends that such a system of comparative examination of tests be extended annually to all state laboratories. In turn, the state laboratories should offer a similar opportunity to local laboratories.

American Journal of Diseases of Children, Chicago

53: 429-672 (Feb.) 1937

- Two Cases of Congenital Anomalies of the Brain. Cornelia de Lange, Amsterdam, Netherlands.—p. 429.
Lipids of Blood Plasma in Neonatal Period. M. J. E. Senn and Helen McNamara, New York.—p. 445.
Hereditary Familial Deviations: I. Laurence-Moon-Biedl Syndrome. J. Warkany, G. S. Frauenberger and A. G. Mitchell, Cincinnati.—p. 455.
*Reaction Following Intramuscular Injection of Whole Blood. M. Rapoport and J. Stokes Jr., Philadelphia.—p. 471.
Clinicopathologic Study of Sexual Precocity with Hydrocephalus: Report of Two Cases Occurring in Females, with Postmortem Observations in One. G. B. Dorff, Brooklyn, and L. M. Shapiro, New York.—p. 481.
*Intestinal Stasis Due to Low Mineral Intake. Elizabeth Chant Robertson, Toronto.—p. 500.
Myringitis Bullosa Haemorrhagica. S. Karelitz, New York.—p. 510.

Reaction Following Intramuscular Injection of Whole Blood.—Of a group of 1,341 children given injections of citrated whole blood intramuscularly, fifty-two showed fever, malaise and leukocytosis, with swelling, redness and pain at the sites of injection for from two to ten days, average five and seven-tenths days, after the injection. These symptoms lasted from two to seven days (average three and one-half days) and left no sequels. Rapoport and Stokes investigated the blood types of seventeen of the children and the donors. All showed that their serum agglutinated the cells of the donor. It cannot be concluded that incompatibility of a recipient's serum with a donor's cells will always lead to a reaction following the intramuscular injection of blood. Surely more than fifty-two such incompatibilities would have occurred in a group of 1,341 injections, and what is more conclusive, the blood of some of the brothers and sisters of reacting children was similarly incompatible with that of their donors and they did not show reactions. Thirteen of the seventeen children showed hemolysis in their serum against the corpuscles of their donors. While no titrations of this hemolysis were attempted, it appeared to be present in fairly high titer, because in all instances the hemolysis took place before agglutination could occur. The hemolysins present in the serums of these thirteen children were probably an increase of normally occurring isohemolysins, in response to the injection of incompatible blood corpuscles. The other four children may have been tested too long after their reaction for hemolysis to take place, as the others were done within four weeks after the reaction.

Intestinal Stasis Due to Low Mineral Intake.—About two years ago, in the course of some other experiments, Robertson observed that rats fed a diet low in minerals showed intestinal stasis, which is evidenced by dilatation and overloading of the large intestine and by much delayed excretion of carmine and barium. The stasis can be cured by adding the missing minerals. Since the addition of calcium and potassium will prevent stasis, it seemed possible that a deficiency of these elements might cause stasis and it was decided to try out the effect of a diet containing about 0.2 Gm. of calcium and about 1 Gm. of potassium daily on nineteen convalescent children from 7 to 12 years of age, the intake of these minerals being reduced to about one fifth of the commonly accepted optimum. The tests on children are not completed, but they suggest that diets low in calcium and potassium are constipating and that such diets low in ash may cause stasis in the appendix which might easily increase the chances of formation of fecaliths and infection. When given a barium sulfate meal, 33 per cent of eighteen children fed diets low in calcium and potassium retained the barium in the appendix for from four to twenty-one days. The same children when fed normal diets did not show barium in the appendix for more than one day.

American Journal of Orthopsychiatry, Menasha, Wis.

7: 1-132 (Jan.) 1937

- Question of Suicide as Problem in College Mental Hygiene. T. Raphael, Sadye H. Power and W. L. Berridge, Ann Arbor, Mich.—p. 1.
Considerations on Suicide, with Particular Reference to That of the Young. G. Zilboorg, New York.—p. 15.
Play Technic in Schizophrenia and Other Psychoses: I. Rationale. S. Rosenzweig and D. Shakow, Worcester, Mass.—p. 32.
Id.: II. Experimental Study of Schizophrenic Constructions with Play Materials. S. Rosenzweig and D. Shakow, Worcester, Mass.—p. 36.
Three Surveys of Treatment Measures Used with Children. C. R. Rogers, Rochester, N. Y.—p. 48.
Psychopathology and Treatment of Delinquent Girls. F. Powdermaker, H. T. Levis and G. Touraine, New York.—p. 58.
Mixed Dominance and Reading Disability. R. L. Jenkins, A. W. Brown and Laura Elmendorf, Chicago.—p. 72.
Indications for Camp Prescription. J. Chassell, Towson, Md.—p. 82.
Psychiatric Developments in a Family Welfare Agency. Elma Olson, Evanston, Ill.—p. 96.
Attitude Therapy. D. M. Levy, New York.—p. 103.
The Neurotic Delinquent. H. S. Lippman, St. Paul.—p. 114.

American Journal of Public Health, New York

27: 103-210 (Feb.) 1937

- *Experience with Picric Acid-Alum Spray in Prevention of Poliomyelitis in Alabama, 1936. C. Armstrong, Washington, D. C.—p. 103.
Public Health Aspects of Treatment of Water and Beverages with Silver. J. Gibbard, Ottawa, Ont.—p. 112.
Malaria Control: Comments on Past and Future. T. H. D. Griffiths, Savannah, Ga.—p. 120.
The New York State Program for the Control of Pneumococcal Pneumonia. E. S. Rogers, Albany, N. Y.—p. 133.
Protective Antibodies in Blood Serum of Individuals After Immunization with Typhoid Vaccine. J. F. Siler, Washington, D. C.—p. 142.
Rôle of the Health Department in Prevention of Accidents. E. S. Godfrey Jr., Albany, N. Y.—p. 152.
Consolidated County Expenditures for Selected Health Services. W. F. Walker and L. Feldman, New York.—p. 156.
Statistical Study of Stillbirths in Hospitals: Preliminary Report. Elizabeth C. Tandy, Washington, D. C.—p. 161.
Application of Engineering Surveys to Hatters' Fur Cutting Industry. J. J. Bloomfield and J. M. Dalla Valle, Washington, D. C.—p. 167.

Experience with Picric Acid-Alum Spray in Prevention of Poliomyelitis in Alabama.—Armstrong states that the appearance of poliomyelitis in Alabama in 1936 afforded an opportunity to carry a field trial on man of spraying the nasal passages. In order to determine the extent to which the spray had been used, a house-to-house survey was carried out in twenty representative districts of Birmingham and in seven of Jefferson County. A total of 2,076 families composed of 8,093 inmates were thus canvassed, of whom 5,010, or 61.9 per cent, were sprayed at some time between July 15 and August 22. From a total of 5,097 white people there were 3,545, or 69.7 per cent, who had been sprayed, while of 2,996 colored people 1,465, or 48.9 per cent, had employed the chemicals. Assuming the same rate of spraying for the whole area, it appears that the sprayed and not sprayed groups dealt with approximated 270,000 and 160,000 individuals, respectively. The very young and the older adults sprayed less than the more susceptible age group. Records as to the effects of the chemicals were secured from 4,631 individuals in the Birmingham area who had sprayed from

one to eight or more times. In 3,758 of these there was no complaint, while 885 complained of uncomfortable but not serious conditions, such as headache for from one to thirty-six hours; nausea, usually after the first or second applications; temporary burning of the nose; head colds, and irritation of the nose or eyes. Calculations were confined to paralytic cases, of which sixty-seven were reported from the Birmingham area from June 6 to September 26. Whether the results would have been better had the spraying been carried out more effectively is unknown. The development of poliomyelitis among persons apparently sprayed according to instructions, however, suggests either that the chemicals are not effective for man or that the suggested method of application, which Peet and Schultz have shown effective for monkeys, was not, as practiced, trustworthy for man. The apparent, though small, reduction in the expected number of sprayed patients suggests the latter alternative, and it is possible that the greater nasal distances and larger surfaces to be covered in children are important considerations. The best method for applying the chemicals evidently was not employed in all the prophylactic failures encountered, and it is furthermore probable that the most satisfactory solution has not yet been found. The actual incidence of poliomyelitis in the group sprayed by whatever method was somewhat less than the calculated incidence based on the rate in the unsprayed control group (16:21.7) (Birmingham area).

American Journal of Tropical Medicine, Baltimore

17:1-136 (Jan.) 1937

- Modern Period of Tropical Medicine: Presidential Address of American Academy of Tropical Medicine. R. P. Strong, Boston.—p. 1.
The Problem of Malaria Mortality in the United States. H. E. Meleney, Nashville, Tenn.—p. 15.
History of Activities of the Rockefeller Foundation in Investigation and Control of Yellow Fever. W. A. Sawyer, New York.—p. 35.
Control of Leprosy: The Charles Franklin Craig Lecture of the American Society of Tropical Medicine. E. Muir, London, England.—p. 51.
Sixth Year's Report on Malaria in Panama (Chagres Valley), with Reference to Drug Control. H. C. Clark and W. H. W. Komp, Panama, Republic of Panama.—p. 59.
Standardization of Iodine Stain for Wet Preparations of Intestinal Protozoa. J. S. D'Antoni, New Orleans.—p. 79.
Vermineous Aneurysm in Equines of Panama. A. O. Foster and H. C. Clark, Panama, Republic of Panama.—p. 85.
Clinical Studies on Human Lung Fluke Disease (Endemic Hemoptysis) Caused by *Paragonimus Westerni* Infestation. Z. Bercovitz, New York.—p. 101.

Anatomical Record, Philadelphia

67:145-270 (Jan. 25) 1937

- Vacuolation of Anterior Pituitary Gland Following Castration, Implantation of Cancer Tissue and Thyroidectomy. M. F. Guyer and Pearl E. Claus, Madison, Wis.—p. 145.
*Thoracopagus, One with Harelip and Cleft Palate. S. Sangvichien, Bangkok, Siam.—p. 157.
Hypophyseal Gonadotropic Hormones and Luteinization Phenomenon in Rat. C. A. Pfeiffer, New York.—p. 159.
Unusual Manner of Vascularization of the Brain of Opossum (*Didelphys Virginiana*). G. B. Wislocki and A. C. P. Campbell, Boston.—p. 177.
Primary Types of Extra-Organic Gross Connective Tissue Structures. E. D. Congdon, Brooklyn.—p. 193.
Alleged Transmigration of Long Tendon of Biceps Brachii. R. M. Neale, Palo Alto, Calif.—p. 205.
Bone Marrow in Monkey (*Macacus Rhesus*). J. Stasney and G. M. Higgins, Rochester, Minn.—p. 219.
Reproductive Organs of Two Mammalian Hermaphrodites and Their Response to Injections of Pregnant Mare Serum. L. J. Wells, Columbia, Mo.—p. 233.
Use of Trypan Blue in Detecting Cell Death in Perfusion of Mammalian Kidney and Evaluation of Some Modified Ringer-Locke Fluids by This Method. J. M. Darlington, Providence, R. I.—p. 253.

Thoracopagus.—Sangvichien observed a female thoracopagus joined together from the suprasternal notch to the umbilicus. The umbilical cord was single but appeared as the fusion of two cords; at the placental end they were separated for a distance of 40 mm. with amnion left between. The peculiarity of this monster was that one of the twins had harelip and cleft palate, while the other had a normally developed face. The deformity appeared on the left side of the face; the nostril of that side was deformed by the forward and medial inclination of the left medial incisor. When the abdomen was opened the livers were found joined together. From measurement the twins were nearly equal in size and neither could be called the parasite of the other.

Annals of Internal Medicine, Lancaster, Pa.

10:951-1084 (Jan.) 1937

- *Further Studies on Intoxication with Vitamin D. I. E. Steck, H. Deutsch, C. I. Reed and H. C. Struck, Chicago.—p. 951.
*Dietetic Treatment of Constipation, with Especial Reference to Food Fiber. J. L. Kantor and Lenna F. Cooper, New York.—p. 965.
Occurrence of Coronary Thrombosis in Young Individuals. T. M. Durant, Philadelphia.—p. 979.
Estimation of Cardiac Function by Simple Clinical Methods. E. Mesinger, St. Cloud, Minn.—p. 986.
Blood Velocity Rate and Venous Pressure in Prognosis of Heart Disease. S. Candel and M. A. Rabinowitz, Brooklyn.—p. 1000.
Complications and Hazards of Fever Therapy: Analysis of 1,000 Consecutive Fever Treatments with Kettering Hypertherm. R. M. Stecher and W. M. Solomon, Cleveland.—p. 1014.
Liver Function in Rheumatoid (Chronic Infectious) Arthritis: Preliminary Report. W. B. Rawls, S. Weiss and Vera L. Collins, New York.—p. 1021.
Medical Poet Laureate, Robert Bridges, M.D., Poet Laureate of England 1913 to 1930. L. H. Roddis, Washington, D. C.—p. 1028.

Studies on Intoxication with Vitamin D.—With the extensive application of massive doses of vitamin D as a therapeutic agent in various clinical conditions, numerous criticisms have arisen which Steck and his associates have summarized as follows: 1. Hypervitaminosis D may produce symptoms of hyperparathyroidism. 2. The therapeutic use of vitamin D is rational only in conditions of known deficiency. 3. Animals experimentally treated with vitamin D concentrates have shown extensive calcium deposits in various tissues, and other pathologic changes have been found. There is, thus, danger of permanent injury to human subjects. Observations on sixty-four dogs and 773 human subjects receiving massive doses of vitamin D have been made and data recorded as to dose per unit of body weight, and on the nature of the process of intoxication. Both human subjects and dogs generally survive the daily administration of 20,000 units per kilogram for indefinite periods without intoxication. Hypervitaminosis D first produces cell injury followed by calcium deposition. This process is reversible and repairable if administration is discontinued promptly, but neither animal nor human subjects in the authors' experience have ever recovered from the toxic condition while administration continued.

Dietetic Treatment of Constipation.—Kantor and Cooper suggest that the diet for constipation should be planned with the same precision as that for diabetes or obesity. In other words the physician should be able to think in quantitative terms about fiber as he does about calories, carbohydrates, fats or proteins. Cowgill's concept of the physiologic fiber minimum should receive due recognition. The fiber content of the more important fruits, vegetables and cereals should be made more generally available to the physician. According to the Cowgill standard of 100 mg. of fiber per kilogram of body weight, a man of 154 pounds (70 Kg.) will normally require 7 Gm. of fiber daily; a woman of 121 pounds (55 Kg.) will need 5.5 Gm. In order to obtain this total, selection may be made in approximately equal portions from each of the three classes of fibrous foodstuffs—fruits, vegetables and cereals. Only bland foods should be selected at the beginning of treatment. 1. From the list of fruits, three varieties may be chosen, preferably one for each meal. Assuming that apples, prunes and bananas are taken, it will be noted that the fiber in three average portions adds up to 2.2 Gm. 2. Four vegetables should be selected, including one serving of potato (0.4 Gm.). If to this are added string beans (1.05 Gm.), spinach (0.45 Gm.) and asparagus (0.35 Gm.), the total from this source becomes 2.25 Gm. 3. For the cereal foodstuffs one whole grain cereal, such as shredded wheat (0.78 Gm.), with perhaps a slice of whole wheat bread (0.36 Gm.), should be taken for breakfast. At each of the other two meals, two slices of bread (0.72 Gm.) may be used. This brings up the total for this group to 2.58 Gm. Other cereal products, such as noodles, cake, pastry and certain puddings, may be substituted for some of the bread. Every effort should be made to avoid colic, distention and other evidences of irritation, since the resulting spasm may serve to increase the fecal stasis. In any regimen for the treatment of constipation, adequate water intake is essential to supply the means by which the fruit and vegetable pectins and galactans soften the feces. The discovery of an active principle in prunes suggests that certain fruits may possess special cathartic properties in addition to their fiber-acid-sugar content.

However, the authors' experiment fails to show unmistakable superiority for prunes, because only five of their nine subjects rated them first in laxation and two reported them least effective as compared with apples and bananas. Cooked apples may be substituted for the raw. Bananas may be served in any way desired, but if eaten raw they must be ripe, since the unconverted starch may cause "indigestion."

Archives of Dermatology and Syphilology, Chicago

35: 203-376 (Feb.) 1937

- Shoes: Source of Reinfection in Ringworm of Feet. R. C. Jamieson and Adelia McCrea, Detroit.—p. 203.
- Failure of Therapy with Glandular Preparations in Acne Vulgaris. L. McCarthy and O. B. Hunter, Washington, D. C.—p. 211.
- *Vesiculobullous Dermatitis Following Administration of Arsphenamine: Report of Case. Kathleen B. Muir, Chicago.—p. 226.
- Lymphogranuloma Venereum and Associated Diseases. D. T. Prehn, Canacao, Philippine Islands.—p. 231.
- Influence of Avitaminosis A on Experimentally Produced Cutaneous Infections in Rats. T. H. Sternberg and D. M. Pillsbury, Philadelphia.—p. 247.
- *Acneform Dermatitis Produced by Ortho (2 Chlorophenyl) Phenol Sodium and Tetrachlorophenol Sodium. M. G. Butler, Saginaw, Mich.—p. 251.
- Eruption Resembling Lichen Scrofulosorum Coincident with Nontuberculous Pulmonary Disease. E. T. Bernstein, New York.—p. 255.
- Sensitivity to Tryparsamide. J. K. Miller and H. J. O'Donnell, Ingle-side, Neb.—p. 264.
- Nitritoid Crisis Following Intramuscular Injection of Enesol. H. M. Hedge, Chicago.—p. 267.
- Extracellular Cholesterosis. C. W. Laymon, Minneapolis.—p. 269.

Vesiculobullous Dermatitis Following Administration of Arsphenamine.—In Muir's case of vesiculobullous dermatitis following the administration of arsphenamine the initial erythema appeared on the ninth day of arsphenamine therapy suggesting that the eruption may have been the "erythema of the ninth day," although its duration was somewhat longer than usual. A severe neuritis developed during the course of the erythema, and about a week later an unusually severe vesiculobullous eruption ensued. The neuritis can in all probability be interpreted as due to arsphenamine, but its association with subsequent vesicular dermatitis suggests a connection between the two. It is unusual to see an eruption associated with arsenical neuritis; so in all probability the dermatitis in this case should be considered toxic and a manifestation of the general arsphenamine intoxication, as dermatitis may be caused by toxic substances formed elsewhere; for instance, in the liver. The point of action of the toxin on the skin may have been either the epidermis or the dermis. The influence of focal infection on the development of arsenical dermatitis has been discussed by others. The patient had had salpingo-oophoritis followed a year later by acute gonorrheal salpingitis. During the following year she had chronic iridocyclitis of undetermined origin. In addition to her infections she had also had functional colitis, which indicates a background of neurocirculatory instability, a condition predisposing to sensitization. Death was evidently due to the general toxic degeneration of the vital organs, presumably of arsenical origin, but evidences of infection (pleural abscess and fibrinous peritonitis) suggest that an infectious complication was present.

Acneform Dermatitis Produced by Orthochlorphenol Sodium and Tetrachlorophenol Sodium.—Butler has observed twenty-one cases of an acneform eruption which occurred in persons handling a mixture of ortho (2 chlorophenyl) phenol sodium and tetrachlorophenol sodium. Only persons handling the finished products were affected. These men did not handle or come in contact with any by-products. Other men working in the same building but not coming into direct contact with the agents remained unaffected. In some patients the disorder developed several months after exposure had ceased. The essential lesions were predominantly papulofollicular and were associated with marked hyperkeratosis. Enormous numbers of comedones and numerous sebaceous cysts were present. Secondary pustular lesions from the size of a pea to that of a chestnut were observed. The eruption began with a few papules behind the ears; then it spread to the forehead, cheeks, chin and back of the neck. The scalp, hands and feet were not affected. No reactions occurred in persons who had not been exposed to the chemicals concerned. Patch tests failed to show any epidermal sensitization. Roentgen therapy proved helpful but not cura-

tive. These drugs should not be used as fungicidal agents until further investigation reveals the mechanism whereby they produce this dermatosis. The author is of the opinion that a constitutional reaction is involved.

Archives of Internal Medicine, Chicago

59: 175-366 (Feb.) 1937

- Diabetic Coma. E. P. Joslin, H. F. Root, Priscilla White, A. Martz and A. P. Joslin, Boston.—p. 175.
- Studies of Urobilinogen: II. Urobilinogen in Urine and Feces of Subjects Without Evidence of Disease of Liver or Biliary Tract. C. J. Watson, Minneapolis.—p. 196.
- Id.: III. The Per Diem Excretion of Urobilinogen in Common Forms of Jaundice and Disease of Liver. C. J. Watson, Minneapolis.—p. 206.
- Clinical Significance of Creatine Reserve of Human Heart. M. Bodansky and J. F. Pilcher, with technical assistance of Virginia B. Duff, Galveston, Texas.—p. 232.
- Treatment of Essential and Malignant Hypertension by Section of Anterior Nerve Roots. I. H. Page and G. J. Heuer, New York.—p. 245.
- *Recklinghausen's Neurofibromatosis: Clinical Manifestations in Thirty-One Cases. J. C. Sharpe and R. H. Young, Omaha.—p. 299.
- Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions. R. M. Wilder and D. L. Wilbur, Rochester, Minn.—p. 322.

Recklinghausen's Neurofibromatosis.—During the last three years, Sharpe and Young have observed thirty-one patients with Recklinghausen's neurofibromatosis. They propose to demonstrate examples of the multiple manifestations of the condition and to emphasize the influence of various physiologic factors and life experiences on the disease. It is suggested that from a congenital or inherited mesodermal abnormality an embryonic tissue arrest is formed, which at birth or during infancy, childhood, puberty or pregnancy may become clinically manifest, depending on its response to the stimulation of the normal physiologic growth factor. This reaction to the influence of physiologic factors and life experiences leads to the progressive and changeable course of the disease. The clinical features that any particular patient may present will be dependent on his age, the congenital factors and his individual sensitivity to stimulating influences. Of all the influences studied in the thirty-one cases, pregnancy produced the most stimulative effect in the progressive course of the disease. Avoidance of pregnancy affords the chief opportunity for control and arrest, as the disease in a large percentage of cases is hereditary and is without beneficial treatment. It is hoped that further attention to the history of the disease during the life of affected subjects, rather than a consideration of the more classic, static, nosologic cross-section of the disease that the patients present at any life period, will be productive of a more helpful management.

Archives of Neurology and Psychiatry, Chicago

37: 223-478 (Feb.) 1937

- Newer Aspects of Olfactory Physiology and Their Diagnostic Applications. C. A. Elsberg, New York.—p. 223.
- Prostigmin in Treatment of Myasthenia Gravis and Muscular Dystrophy: Results Obtained with Divided Doses. N. W. Winkelman and M. T. Moore, Philadelphia.—p. 237.
- Geniculate Neuralgia (Neuralgia of Nervus Facialis): Further Contribution to Sensory System of Facial Nerve and Its Neuralgic Conditions. J. R. Hunt, New York.—p. 253.
- *Neurologic Manifestations in Vitamin G (B₂) Deficiency: Experimental Study in Dogs. H. M. Zimmerman, G. R. Cowgill and J. C. Fox Jr., New Haven, Conn.—p. 286.
- Neurologic Aspects of Pterostitis. J. C. Yaskin and K. Kornblum, Philadelphia.—p. 307.
- Cerebral Circulation: XLIV. Vasodilation in Pia Following Stimulation of Vagus, Aortic and Carotid Sinus Nerves. H. S. Forbes, Gladys I. Nason and Ruth C. Wortman, Boston.—p. 334.
- Id.: Reaction of Pial Arteries to Fall in Blood Pressure. M. Fog, Copenhagen, Denmark.—p. 351.
- Relation of Carotid Sinus to Autonomic Nervous System and Neuroses. E. B. Ferris Jr., Cincinnati; R. B. Capps, Chicago, and S. Weiss, Boston.—p. 365.
- Extirpation of Huge Pinealoma from Patient with Pubertas Praecox: New Operative Approach. G. Horrax, Boston.—p. 385.

Neurologic Manifestations in Vitamin G Deficiency.—The basal diet that Zimmerman and his associates employed in their study consisted of an artificially balanced ration which was palatable to the dog and adequate in all known dietary essentials except water-soluble, heat-stable vitamin G (B₂). The experiment was controlled by feeding a second group of dogs the same diet plus 0.1 Gm. of liver extract per kilogram of body weight daily. A third group of animals served as controls for

the inanition factor; each animal was fed daily only as much of the basal ration as his experimental partner had eaten on the preceding day and an adequate amount of vitamin G. In twelve of the fifteen dogs maintained on the deficient ration a slowly progressive disease developed, characterized by loss of weight, vomiting and bloody diarrhea, flaccid muscular weakness, incoordination and decrease of the deep reflexes. Death occurred in from 107 to 599 days. The acute symptoms could be modified and the life of the animal prolonged by the administration of a minimal amount of vitamin G, 0.05 Gm. of liver extract per kilogram of body weight daily. This permitted the gradual development of the neurologic signs to a more marked degree. In each of the twelve control animals receiving an adequate amount of vitamin G, neither the clinical nor the pathologic manifestations of the disease developed. The lesions consist of marked demyelination of the peripheral nerves and degeneration of their axis cylinders. Many medullary sheaths and axis cylinders of the posterior columns are also destroyed and replaced by gliosis. The degenerative changes in the nervous system are similar to those observed in cases of human pellagra.

Canadian Medical Association Journal, Montreal

36: 111-222 (Feb.) 1937

- Further Observations on Use of Protamine Zinc Insulin in Diabetes Mellitus. I. M. Rabinowitch, A. F. Fowler and A. C. Corcoran, Montreal.—p. 111.
- Intestinal Absorption in Its Relation to Allergy. R. L. Benson, Portland, Ore.—p. 129.
- By-Passing Arterial Blood into Pulmonary Arteries in Treatment of Pulmonary Tuberculosis. R. J. Bennett, Edmonton, Alta.—p. 134.
- Diaphragmatic Hernia: Review of Recent Literature and Report on Five Cases. G. H. Stobie, Belleville, Ont.—p. 136.
- Apparent Instance of Parathormone Inactivity. F. A. L. Mathewson and A. T. Cameron, Winnipeg, Manit.—p. 141.
- Surgical Aspects of Oral Cancer. H. Wookey, Toronto.—p. 148.
- Factors in Production of Neuroses. G. K. Wharton, London, Ont.—p. 152.
- *Myxedema: Errors in Diagnosis and Treatment. H. D. Kitchen, Winnipeg, Manit.—p. 156.
- *Epilepsy in General Practice. R. G. Armour, Toronto.—p. 160.
- Psoriasis. H. Orr, Edmonton, Alta.—p. 165.
- Erysipelas in Infancy. G. E. White, Windsor, Ont.—p. 169.
- Use of Mapharsen in Treatment of Syphilis. S. C. Peterson, Winnipeg, Manit.—p. 172.
- Hormone Therapy for Ectopic Testes. A. W. Farmer, Toronto.—p. 174.
- Use of Nupercaine in Rhinolaryngology. P. A. Tickin, Toronto.—p. 176.

Myxedema.—Kitchen believes that, in spite of the well established clinical nature of myxedema, many cases are overlooked for years. Some of the patients one sees do not follow the clinical pattern in detail, and a diagnosis is made with reluctance. The pulse rate may be normal or the blood pressure elevated and the weight not excessive, so the possibility is dismissed. Or occasionally, when doubt exists, a basal metabolic reading may be taken and found to be only minus 18 or 20 and this seems hardly low enough, since minus 35 at least is expected. A low basal metabolic rate is valuable confirmatory evidence, but it should never confuse one's clinical judgment. Then, too, there may be no history of intolerance to cold or undue fatigability, because these people have for years been accustomed to a low threshold of activity and to wearing sweaters in an indoor atmosphere of 80 F. and much extra clothing when venturing outdoors. There is no reason why they should voluntarily mention these facts, as to them these are not ailments but constitute a perfectly normal condition. The greatest source of error in diagnosis, however, arises from the fact that these patients often present themselves for examination because of one particular symptom (menorrhagia, neuritic or joint pains, flatulent dyspepsia, albuminuria, anemia or obstinate constipation) which is so annoying that it banishes thought of any minor discomforts which they may experience. As a result, one is prone to focus attention on the symptom, forgetting the individual, and so it happens that not infrequently he may be treated for anemia, dyspepsia, arthritis, nephritis, constipation or some other complaint, and many months may elapse before the real diagnosis is made.

Epilepsy in General Practice.—Armour warns that young epileptic patients should not be left to "grow out of" the condition. Repeated convulsive attacks in infancy and early childhood probably tend to create or increase an "epileptic

potentiality." Perhaps one of the greatest mistakes is to regard epilepsy as exclusively a nervous disease to be treated only by the specialist. Many practitioners are puzzled because they fail to find abnormal physical signs in their examination of the nervous system. More and more are constitutional and metabolic diseases complicated by the epileptic state. Early gastro-intestinal disturbances, neglected and leading to repeated convulsions, would seem to have a great influence in establishing the epileptic potentiality. The headache, dizziness and occasional delirium following sunstroke due to excessive sunbathing must surely indicate vascular disturbances, such as great congestion and edema or even minute hemorrhages. "Epilepsy" is not a disease in itself. It is probably the occasional expression of many different diseases or abnormalities.

Connecticut State Medical Society Journal, New Haven

1: 149-238 (Feb.) 1937

- *Protamine Insulin. A. Marble, Boston.—p. 149.
- Physiology and Management of Tachycardias. L. H. Nahum and H. E. Hoff, New Haven.—p. 154.
- Use of Rogers Method in Treating Uncomplicated Compression Fractures of Spine. F. S. Jones, Hartford.—p. 159.
- Clinical Aspects of Thyroid Disease. A. S. Taylor, Clifton Springs, N. Y.—p. 172.
- Limitations of Pneumothorax Therapy in Lobar Pneumonia. F. G. Blake, New Haven.—p. 178.
- Broader Aspects of Psychiatry. C. C. Burlingame, Hartford.—p. 181.
- Fellow of the American Medical Association. C. Barker, New Haven.—p. 196.
- Some Every Day Rectal Problems. A. R. Keith, Hartford.—p. 199.
- Early Motion in Fracture Treatment. M. K. Lindsay, New Haven.—p. 207.

Protamine Insulin.—Marble believes that protamine insulin in its present or in an even more perfected form has come to stay, or at least that some slowly acting preparation closely akin to it will in the future form a valuable part of the physician's armamentarium. With it there is a means of controlling diabetes for twenty-four hours of the day. Protamine insulin can be used with benefit in practically every case. In the author's experience the best results have been obtained with protamine insulin to which a trace of zinc has been added. The insulin and the protamine solution, kept separately, are stable indefinitely. Many patients, including all mild and some of the moderately severe cases, can be controlled on one daily dose of protamine insulin alone. There is little or no evidence to indicate that the small amounts of zinc present in protamine zinc insulin may give rise to toxic effects.

Georgia Medical Association Journal, Atlanta

26: 45-90 (Feb.) 1937

- Tumors of Adult Kidney: Report of Cases. E. Floyd and J. L. Pittman, Atlanta.—p. 45.
- Use of Atabrine and Plasmochin in Control and Treatment of Malaria. M. E. Winchester, Brunswick.—p. 54.
- *Psychosis Following Administration of Atabrine for Malaria. E. W. Allen, H. D. Allen Jr. and C. B. Fulghum, Milledgeville.—p. 62.
- Tuberculosis of Skin Rosacea-like Type: Report of Case. H. Hailey, Atlanta.—p. 68.
- Surgical Correction of Crossed Eyes. W. O. Martin Jr., Atlanta.—p. 70.
- Disease of Respiratory and Upper Alimentary Tracts: Endoscopy as an Aid to the General Practitioner. B. M. Cline, Atlanta.—p. 74.
- Dysentery (Infectious Diarrhea) in Children. W. W. Anderson, Atlanta.—p. 78.
- Collapse Therapy in Pulmonary Tuberculosis. D. C. Elkin, Atlanta.—p. 81.

Psychosis Following Administration of Atabrine for Malaria.—The Allens and Fulghum observed nine patients who presented evidence of toxic psychosis in which atabrine was the principal causative factor. Five of these patients showed wild excitement closely resembling the manic type, two showed mild excitement with confusion, and two showed almost no excitement but severe confusion. Only four of the nine patients had had previous nervous or mental symptoms: one had been mildly excited over religion, one had an undescribed nervous episode when young, another had a psychopathic personality and one had an undiscovered paresis. Six patients had associated physical conditions that could have been predisposing factors. Five of the nine patients had had quinine in addition to atabrine. Only one patient failed to develop yellow pigmentation. Distress of the upper part of the abdomen occurred in one third of the series and was always the high, transverse,

colon type of distress. Further proof of this relationship must await appropriate chemical studies of the excretion of the drug, such as the glacial acetic acid test of the urine for delayed excretion. Other factors that may delay excretion should be watched for while the patient is under active treatment, such as constipation, kidney insufficiency, insufficient liquid intake or loss of blood liquids that may result from insufficient nourishment, high fever, excessive exercise and sweating. Yellow pigmentation is a warning complication. Evidently the pigmentation can be seen only in the skin of the lightest colored races. The dosage of atabrine should perhaps be more closely correlated to body weight. The three patients who took less than 25 mg. of atabrine per kilogram of body weight had symptoms for less than three days. Each patient with manic depressive symptoms, even though transient, should be followed up over a period of years to learn whether attacks recur independent of atabrine.

Journal of Bacteriology, Baltimore

33: 1-122 (Jan.) 1937

Viruses and Koch's Postulates. T. M. Rivers, New York.—p. 1.

33: 123-242 (Feb.) 1937

Cell Size and Metabolic Activity at Various Phases of Bacterial Culture Cycle. Evelyn Huntington and C. E. A. Winslow, New Haven, Conn.—p. 123.

Comparison of Metabolic Activities of Aerobacter Aerogenes, Eberthella Typhi and Escherichia Coli. C. E. Clifton, Stanford University, Calif.—p. 145.

Facultative Sporulating Bacteria Producing Gas from Lactose. R. Porter, C. S. McCleskey and M. Levine, Ames, Iowa.—p. 163.

Acid Production by Escherichia-Aerobacter Group of Bacteria as Indicated by Dissolved Metallic Iron. A. V. Syrocki, J. E. Fuller and R. L. France, Amherst, Mass.—p. 185.

Occurrence of Salmonella, Senftenberg Type, in Disease of Turkeys. P. R. Edwards, Lexington, Ky.—p. 193.

Reaction with Iron Compounds for Determination of Bacillus Anthracis and of Its Pathogenicity. E. De Angelis, Morgantown, W. Va.—p. 197.

Growth Factors for Bacteria: III. Some Nutritive Requirements of Lactobacillus Delbrückii. E. E. Snell, E. L. Tatum and W. H. Peterson, Madison, Wis.—p. 207.

Id.: IV. Acidic Ether-Soluble Factor Essential for Growth of Propionic Acid Bacteria. H. G. Wood, E. L. Tatum and W. H. Peterson, Madison, Wis.—p. 227.

Journal of Experimental Medicine, New York

65: 177-316 (Feb.) 1937

Production of Blood Platelets in Lungs. W. H. Howell and D. D. Donahue, Baltimore.—p. 177.

*Effects of Gonadotropic Hormones in Treatment of Experimental Tuberculosis. M. M. Steinbach and S. J. Klein, New York.—p. 205.

Immunization of Rabbits to Infectious Papillomatosis. R. E. Shope, Princeton, N. J.—p. 219.

Studies on Experimental Hypertension: II. Effect of Resection of Splanchnic Nerves on Experimental Renal Hypertension. H. Goldblatt, J. Gross and R. F. Hanzal, Cleveland.—p. 233.

Immunologic and Chemical Investigations of Vaccine Virus: VI. Isolation of Heat-Stable, Serologically Active Substance from Tissues Infected with Vaccine Virus. R. F. Parker and T. M. Rivers, New York.—p. 243.

Antibody Response of Human Subjects Vaccinated with Virus of Human Influenza. T. Francis Jr. and T. P. Magill, New York.—p. 251.

Inheritance of Resistance of Mice to Enteric Bacterial and Neurotropic Virus Infections. L. T. Webster, New York.—p. 261.

Experimental Production of Hemorrhage and Vascular Lesions in Lymph Nodes: Extension of Schwartzman Phenomenon. L. H. Koplik, New York.—p. 287.

*Rapid Invasion of Body Through Olfactory Mucosa. G. Rake, New York.—p. 303.

Gonadotropic Hormones in Treatment of Experimental Tuberculosis.—Of all the animals treated with antuitrin-S (six rabbits and seventeen guinea-pigs) by Steinbach and Klein, only two guinea-pigs failed to show less tuberculosis than did the corresponding controls. Gonadotropic substance, which contains the same principle, also proved of value in retarding the progress of disease. It appears possible that the poorer results obtained with gonadotropic substance may be due to the high concentration of glycerol present in this preparation. Long and Vorwald have shown that injection of glycerol enhances the multiplication of tubercle bacilli in rats. Pregnant mare serum, which is a rich source of gonadotropic substance, proved efficacious in retarding tuberculosis. Anterior pituitary extract proved of no value in retarding the progress of the disease, and in many instances animals treated with this substance showed more tuberculosis than did the controls. Pla-

cental extract (emmenin) given by mouth was likewise entirely ineffective in preventing progress of the disease. The results obtained suggest that the gonadotropic principle which appears during pregnancy may be an important factor in the increased resistance displayed by the pregnant tuberculous woman. The breakdown of this resistance that occurs during the later stages of pregnancy may perhaps be correlated with the diminution of this hormone, which begins after about the fifth or sixth month and ends with the entire disappearance of the hormone a few days after delivery.

Rapid Invasion of Body Through Olfactory Mucosa.—Rake observed that prussian blue particles pass rapidly from the surface of the olfactory mucosa and within two minutes are found in the tissue spaces, in blood and lymph vessels, in the perineural spaces of the olfactory nerve fibers and in the subarachnoid space and pia-arachnoid membrane. Preliminary treatment of the olfactory mucosa with tannic acid does not alter the speed with which this absorption occurs. It does, however, cause an inflammation of the mucosa and appears to prevent the pigment from entering the olfactory sensory cells. Both pneumococci and Salmonella enteritidis pass through the olfactory mucosa and reach the tissue spaces, the vessels and the subarachnoid space with the same rapidity as the pigment. They invade by passage between the cells of the mucosa and there is no apparent affinity of the organisms for the olfactory sensory cells. Tannic acid treatment of the olfactory mucosa in no way alters this invasion of organisms through the mucosa. The pantropic virus, equine encephalomyelitis, was detected in the forebrain as promptly as were pigment and bacteria; neurotropic viruses, however—those of St. Louis encephalitis, rabies and louping ill—were not demonstrated in less than twenty-four hours.

Journal of Pharmacology & Exper. Therap., Baltimore

59: 123-240 (Feb.) 1937

Studies on Chemotherapeutic Action: I. Absorption of Arsenical Compounds and Tartar Emetic by Normal and Resistant Trypanosomes and Its Relation to Drug Resistance. F. Hawking, Cardiff, Wales.—p. 123.

Trypanocidal Activity and Arsenic Content of Cerebrospinal Fluid After Administration of Arsenical Compounds. F. Hawking, T. J. Hennelly and J. H. Quastel, Cardiff, Wales.—p. 157.

Action of Dichloro-Difluoro-Methane on Nervous System of Cat. C. Brenner, Boston.—p. 176.

Preparation of Ferrous Gluconate and Its Use in Treatment of Hypochromic Anemia in Rats. P. Reznikoff and W. F. Goebel, New York.—p. 182.

Influence of Cold on Calorigenic Action of Dinitrophenol. V. E. Hall, J. M. Crisman and P. E. Chamberlin, Stanford University, Calif.—p. 193.

Solubility Coefficients of Cyclopropane for Water, Oils and Human Blood. F. S. Orcutt and M. H. Seevers, Madison, Wis.—p. 206.

Analysis of Action of Posterior Pituitary Extracts on Uterus. T. N. Morgan, Aberdeen, Scotland.—p. 211.

Pyruvic Acid Cyanohydrin as Respiratory Stimulant: Study of Cyanide Action. E. K. Marshall Jr. and M. Rosenfeld, Baltimore.—p. 222.

Journal of Urology, Baltimore

37: 249-334 (Feb.) 1937

Surgical Procedures in Neurodynamic Pathology of Upper Urinary Tract. W. P. Herbst, Washington, D. C.—p. 249.

*Study of Recurrence Following Operations for Nephrolithiasis. F. P. Twinem, New York.—p. 259.

Primary Vesical Calculus. A. C. Siddall, Oberlin, Ohio.—p. 268.

Huge Bladder Calculus with Chewing Gum Core. J. A. McKenzie, Miami, Fla.—p. 280.

Alkaline Incrusted Cystitis. A. Randall and E. W. Campbell, Philadelphia.—p. 284.

Cocaine Absorption in Urethra and Bladder: Report on Quantitative Determinations. E. Rupel and R. N. Harger, Indianapolis.—p. 300.

Treatment of Hydrocele and Similar Scrotal Cysts by Injection Method. M. M. Mayers, Los Angeles.—p. 308.

Hydrogen Ion Concentration of Seminal Fluid from Sterile Men. F. C. Messer and B. R. Almquest, Pittsburgh.—p. 319.

Maximal Intrapelvic Pressure (Secretion Pressure) of Kidney of Dog. J. R. McDonald, F. C. Mann and J. T. Priestley, Rochester, Minn.—p. 326.

Another Modification of Young's Punch. H. L. Tolson, Cumberland, Md.—p. 333.

Study of Recurrence Following Operations for Nephrolithiasis.—Twinem reviewed 314 cases of operation for nephrolithiasis. The percentage of recurrence following pyelotomy was 20.9 and the percentage of recurrence following nephrotomy, 28. The greater incidence following nephrotomy agrees with the results of other investigators, but this point should

be interpreted with some qualification since the type of operation originally selected depends on the size, shape, number and location of the stones. The percentage of recurrence following operations for multiple stones was greater than that following operations for single stones. The frequency of pseudorecurrence is considerable and, to avoid this possibility, roentgenograms should be taken on the operating table particularly in cases of multiple and staghorn calculi. Heminephrectomy should probably be employed more frequently than it has been by most operators. The low percentage of recurrence in the opposite kidney following both nephrectomy and conservative operation indicates the importance of local factors in stone formation. Phosphatic calculi were found to recur more frequently than calculi of other composition, except those composed of cystine. The ten cases most frequently recurring were all either primarily or secondarily infected. The importance of *Bacillus proteus* in these persistently recurring cases is emphasized. The possibility of the presence of hyperparathyroidism should be investigated, particularly in the bilateral and recurring cases.

Kansas Medical Society Journal, Topeka

38:45-88 (Feb.) 1937

- Surgical Treatment of Goiter. G. B. Kent and K. C. Sawyer, Denver.—p. 45.
Some Pitfalls in Pathologic Diagnosis of Cancer. F. C. Helwig, Kansas City, Mo.—p. 50.
Narcoplepsy. G. O. Speirs and R. E. Speirs, Spearville.—p. 54.
Practical Discussion of the Silicosis Problem. O. A. Sander, Milwaukee.—p. 57.

Maine Medical Journal, Portland

28:25-42 (Feb.) 1937

- Public Health Activities and the Physician. B. L. Arms, Farmington.—p. 25.
Crippled Children's Program: Calendar Year Ending Dec. 31, 1936. H. R. Kobes, Augusta.—p. 27.
Ocular Syphilis. H. F. Hill, Waterville.—p. 29.
Serology of Syphilis. A. H. Morrell, Augusta.—p. 31.

Medicine, Baltimore

16:1-94 (Feb.) 1937

- Pathogenesis of Uremic Syndrome. T. R. Harrison and M. F. Mason, Nashville, Tenn.—p. 1.
Tuberculous Pericarditis. A. M. Harvey and M. R. Whitehill, Baltimore.—p. 45.

Minnesota Medicine, St. Paul

20:71-134 (Feb.) 1937

- *Value of Electrolyte, Water and Acid Base Balance Studies in Renal Disease. G. M. Piersol, Philadelphia.—p. 71.
Histology of Pineal Gland and Its Probable Physiologic Function. A. M. Hanson, Faribault.—p. 78.
Principles in Medical Treatment of Head Injuries. B. L. Gifford, Long Prairie.—p. 81.
Chronic Suppurative Otitis Media. H. L. Williams, Rochester.—p. 85.
Acute Surgical Mastoiditis. F. G. Folken, Albert Lea.—p. 90.
Severe Cutaneous Reactions to Barbiturates. S. E. Sweitzer and C. W. Laymon, Minneapolis.—p. 92.
Tularemia with Low Agglutination Titer Disappearing After Serum Therapy. R. L. Nelson, Duluth.—p. 97.
Sedimentation Rate in General Practice. W. A. Merritt, Albert Lea.—p. 99.
Some Observations on Focal Infection. L. I. Younger, Winona.—p. 101.
Simple Method of Transfusion in Infants. L. C. Barr, Albert Lea.—p. 104.

Electrolyte, Water and Acid Base Balance Studies in Renal Disease.—Piersol discusses only vascular renal disease. Whether the primary lesion involves the capillaries of the glomerular tufts or the endothelium of the afferent arterioles to the glomeruli, the ultimate effect is to disturb normal renal function. When the principal changes are in the arterioles, the vascular disturbance is by no means confined to the kidneys but is a systemic involvement. There is no symptom complex associated with renal insufficiency that is of more clinical importance than the phenomena called uremia. The clinical manifestations of true uremia are correlated in some way with retention in the blood of waste products that should have been eliminated by the kidneys. The most serious and lethal manifestation of true uremia is uremic coma always with definite acidosis. There is no relationship between uremic coma and the height of the blood urea. In acidosis of renal origin there

is a decrease in the plasma carbon dioxide combining power and an increase in the inorganic phosphates and sulfates of the blood. There may be associated reduction of total base and "starvation ketosis." When systemic blood pressure in a patient with chronic nephritis falls to a level below the effective glomerular filtration pressure, renal function will be impaired markedly and uremic coma may result. Cases of hypochloremia with high blood urea are often mistaken for true uremia. The hyperazotemia and increased plasma carbon dioxide are part of a compensatory mechanism for the maintenance of osmotic pressure of body fluids. Unless hypertension preexists, these cases will show no elevation of blood pressure; on the contrary, there is often a lowered blood pressure. Chronically diseased kidneys eliminate sodium chloride only in low concentration. Even when no edema is present, it is important to regulate the sodium chloride intake so as to preserve a normal electrolyte level in order to maintain a normal osmotic pressure. Water intake in a nephritic patient must be regulated in accordance with the electrolyte level, the quantity of total plasma proteins present and the efficiency of the myocardium. The maximal amount possible under the existing conditions should be given. The patient with chronic vascular nephritis in whom the condition is no longer progressive may live in reasonable comfort if properly standardized and maintained in water, sodium chloride, alkali and protein balances. In the more acute progressive cases this cannot be done successfully.

New England Journal of Medicine, Boston

216:193-232 (Feb. 4) 1937

- Incidence of Alcoholic Psychoses in Massachusetts, 1917-1935. R. H. Guthrie and N. A. Dayton, Boston.—p. 193.
Spontaneous Internal Biliary Fistulas: Review and Report of Two Cases. W. S. Altman, Quincy, Mass., and E. A. Field, Boston.—p. 199.
Oxygen in Treatment of Coronary Occlusion in the Home. A. M. Burgess and F. H. Chafee, Providence, R. I.—p. 203.
Transient Hemiplegia Accompanying Lobar Pneumonia: Report of Case. B. Zolov, Portland, Maine.—p. 206.

Oklahoma State Medical Assn. Journal, McAlester

30:1-38 (Jan.) 1937

- Ketogenic Treatment of Bacilluria. A. L. Clark, M. R. Everett, M. F. Jacobs, H. D. Moor and Marjorie Audrey Sewell, Oklahoma City.—p. 1.
Oral Roentgenology. E. D. Greenberger, McAlester.—p. 6.
Mental Aspects of the Menopause. C. H. Campbell, Oklahoma City.—p. 12.
Severe Emotional Disturbance Considered as a Factor in Etiology of Acute Pancreatitis. W. P. Neilson, Enid.—p. 14.
Duty of the Family Physician in Presence of Positive Tuberculin Test. L. J. Moorman, Oklahoma City.—p. 17.
Suprarenal Denervation for Malignant Hypertension. R. Q. Atchley, Tulsa.—p. 18.

Southern Surgeon, Atlanta, Ga.

6:1-96 (Feb.) 1937

- Some Fallacies in Regard to Ectopic Pregnancy. J. C. Litzenberg, Minneapolis.—p. 1.
Evaluation of Excretory Urography. J. U. Reaves, Mobile, Ala.—p. 15.
Tumors of the Neck. A. E. Hertzler, Halstead, Kan.—p. 20.
*Obscure Digestive Disturbances Caused by Lesions of Lower Portion of Esophagus. P. P. Vinson, Richmond, Va.—p. 33.
James Marion Sims: The Father of Modern Gynecology. S. Harris, Birmingham, Ala.—p. 35.
*Osteomyelitis of Skull. E. F. Fincher Jr., Atlanta, Ga.—p. 53.

Lesions of Lower Portion of Esophagus.—Vinson states that too frequently it is assumed that indefinite digestive discomfort characterized by distress after meals, gas, fullness in the epigastrium and epigastric pain are the result of disease in the gallbladder. Examination of almost every gallbladder removed at operation will reveal evidence of infection, and the physician and the patient will be disappointed when removal of that organ fails to relieve distress that was thought to be the result of cholecystitis. A more careful preoperative consideration of the esophagus and cardiac portion of the stomach in patients suffering from obscure digestive discomfort will eliminate many errors in diagnosis and decrease the frequency of the useless operations on the stomach and gallbladder. Dysphagia is the most frequent symptom of esophageal disease. Carcinoma of the esophagus and cardiac portion of the stomach is usually associated with dysphagia. Epigastric pain is fre-

quently an early symptom in cardiospasm and may be present for many months or years before other symptoms appear. Inflammation involving the lower portion of the esophagus may be associated with burning beneath the sternum and hematemesis. In the acute stage such inflammation can rarely be differentiated from acute gastritis and, if it becomes chronic, the symptoms may simulate those of peptic ulcer. Healing of the ulceration may result in the formation of a stricture with associated dysphagia. Benign tumors of the esophagus are rarely observed and do not produce symptoms of obstruction until they have attained considerable size. Hernia of a portion of the stomach through the esophageal hiatus in the diaphragm is so closely associated with the esophagus that it can be considered an esophageal lesion.

Osteomyelitis of Skull.—Fincher gives a number of detailed facts concerning the development, course, treatment and results of osteomyelitis of the skull. Individual case reports of variable etiologic background, illustrating the problems and management of these cases, are presented. There are a few instances in which the extensiveness of the disease and the associated debilitating effects on the patient prohibited radical surgical efforts. The complications and sequels of the disease are all so dangerous that early recognition is the answer for prevention, and radical surgical removal of all infected skull is the choice of treatment.

Southwestern Medicine, Phoenix, Ariz.

21: 1-38 (Jan.) 1937

- The "Gastric" Invalid. J. J. Gorman, El Paso, Texas.—p. 1.
Fever Therapy. H. M. Purcell, Phoenix, Ariz.—p. 4.
Blood Transfusion. G. Turner and D. Von Briesen, El Paso, Texas.—p. 7.
Acute Mastoiditis. M. P. Spearman and W. E. Vandevere, El Paso, Texas.—p. 9.
Cisternal Puncture. W. C. Menninger, Topeka, Kan.—p. 10.
Finding the Case of Tuberculosis. L. A. Dewey, Santa Fe, N. M.—p. 13.
What Every Physician Should Know About Allergy. O. H. Brown, Phoenix, Ariz.—p. 14.

West Virginia Medical Journal, Charleston

33: 49-96 (Feb.) 1937

- Natural History of Syphilis. F. C. Hodges, Huntington.—p. 49.
Early Diagnosis of Syphilis. H. T. Phillips and J. C. Kerr, Wheeling.—p. 55.
Treatment of Early Syphilis. W. M. Sheppe, Wheeling.—p. 58.
Syphilis in Infancy and Childhood. G. M. Lyon, Huntington.—p. 62.
*Syphilis and Pregnancy. W. W. Point, Charleston.—p. 70.
Public Health Control of Syphilis. H. B. Robins, Charleston.—p. 73.

Syphilis and Pregnancy.—Point declares that seventy-five out of 100 syphilitic children die within the first year of life (Adams), generally within the first week, and are always an easy prey to infections and intestinal disturbances. The remaining 25 per cent have latent syphilis, which manifests itself usually before the nineteenth year. The generally accepted theory today is that the disease is always transmitted from the mother to the child in utero by way of the placental circulation. Therefore syphilis is congenital and not hereditary. Spirochetal manifestations in the fetus depend on the duration of the mother's syphilis and the stage of the development of the fetus. If infection of the mother takes place a short time before conception, the fetus is almost certain to die in utero. The longer the mother has syphilis before conception, the more probable is the birth of a macerated fetus, a premature child, a stillborn child or a living child with latent syphilis. Syphilitic abortions do not occur before the fourth month; at least, spirochetes have never been found in such early stages of the placenta. Every syphilitic gravida must be treated, regardless of the amount of treatment received before conception and irrespective of the absence of symptoms. The same treatment is required in each succeeding pregnancy. The earlier in pregnancy treatment is instituted, the greater are the chances for the birth of a living and healthy child. No matter how late in pregnancy maternal syphilis is recognized, intensive, systematic treatment must be given. The arsenicals have definitely proved their superiority over mercury for this prophylactic purpose. Abortion or fetal death need not be feared from intravenous injection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

53: 187-268 (Winter) 1936

- Somerset Lake Villages. A. Bulleid.—p. 187.
Abdominal Pain in Childhood. W. Sheldon.—p. 219.
*Treatment of Tobacco Amblyopia by Acetylcholine. B. H. Cragg.—p. 237.
History of the Bristol Medical Dramatic Club. A. L. Flemming.—p. 239.

Treatment of Tobacco Amblyopia by Acetylcholine.—Since July 1936 Cragg has treated five male patients suffering from tobacco amblyopia by the intramuscular injection of acetylcholine bromide. This drug is available in two doses, dose A being 0.03 Gm. and dose B 0.125 Gm. Each patient first received two injections of dose A with one clear day's interval between, and then a daily injection of dose B until no further treatment was considered necessary or until improvement ceased. In addition, patients 4 and 5 were given $\frac{1}{150}$ grain (0.004 Gm.) of physostigmine sulfate daily by mouth, following the suggestion that the action of acetylcholine is enhanced by minute doses of this drug. The results were encouraging: treatment by this method gives more rapid improvement in vision. The patient in most cases realizes that overindulgence in tobacco has been the cause of his defective vision.

British Medical Journal, London

1: 57-104 (Jan. 9) 1937

- The Progress and Present Aspect of Medical Science. R. Hutchison.—p. 57.
*Autogenous Urinary Proteose in Asthma and Other Allergic Conditions. J. Libman and A. D. Bigland.—p. 62.
Value of Oleothorax in Obliterative Pleurisy. F. G. Chandler.—p. 65.
Infective Hepatic Jaundice. H. Barber.—p. 67.
Recurrent Extragenital Hemorrhages. W. H. Gossip.—p. 69.
The Friedman Test in Hydatidiform Mole and Chorionepithelioma. P. Lazarus-Barlow.—p. 71.

Autogenous Urinary Proteose in Asthma.—In assessing the therapeutic effects of proteose, Libman and Bigland realized that even if proteose was not specific in its action, as claimed by Oriel, some therapeutic benefit might be obtained, as often happens with nonspecific injections. Proteose was administered to a series of fifty-eight patients, composed of forty-eight cases of asthma and ten cases of various allergic skin conditions. Autogenous proteose was prepared from the urine in every case. The investigations tend to confirm the view that the zone of erythema obtained at the site of intradermal injection of urinary proteose is probably nothing more than a local toxic reaction and is not in any way specific. The therapeutic benefit obtained with injections of autogenous urinary proteose in cases of asthma is about the same as that obtained with peptone. Any specificity that may be claimed for the former method does not outweigh the many advantages of a simpler and more general form of desensitization such as can be obtained with peptone. Treatment with peptone can be begun at any time, no laboratory preparation is necessary, the same degree of therapeutic value is obtained, and the treatment is relatively cheap.

Glasgow Medical Journal

9: 1-52 (Jan.) 1937

- Convulsions in Acute Nephritis in Childhood. J. B. Rennie.—p. 1.
Plea for Planned and Fuller Medical Specialism, with Addendum on Necessity for Reintegration of Medical Profession. J. I. Cameron.—p. 18.

Irish Journal of Medical Science, Dublin

No. 132: 709-756 (Dec.) 1936

- Some Antique Stones. W. Doolin.—p. 709.
Provision of Medical Terms in Irish. T. J. MacKinney.—p. 722.
Current Views on Diabetes Insipidus. J. D. H. Widdess.—p. 736.
Diabetes Insipidus Influenced by Partial Thyroidectomy: Case. A. A. McConnell.—p. 742.
Pentothal Sodium in Obstetrics. E. Solomons.—p. 746.

Journal of Tropical Medicine and Hygiene, London

40: 1-12 (Jan. 1) 1937

- Nematode Worm Passed in Stools by a Patient Suffering from an Irregular Pyrexia of Obscure Origin. A. J. Noronha.—p. 1.
Diseases of Skin in Negroes. L. J. A. Loewenthal.—p. 4.

Lancet, London

1: 67-124 (Jan. 9) 1937

- *The Nose and Throat in Relation to Rheumatic Diseases. H. Barwell.—p. 67.
Choline Esterase Activity in Disease, with Especial Reference to Myasthenia Gravis. M. McGeorge.—p. 69.
Carcinoma of Cervical Esophagus. R. Pilcher.—p. 73.
Pernicious Anemia After Nitric Acid Corrosion of Stomach. G. Alsted.—p. 76.
Pulmonary Fibrosis in Children: Report of Twenty-Three Cases. M. O. Raven.—p. 80.
Oxygen Administration: Further Observations. J. A. Campbell.—p. 82.
Internal Pneumolysis: A Further One Hundred Consecutive Operations. F. G. Chandler.—p. 83.

The Nose and Throat and Rheumatic Fever.—According to Barwell, an attack of acute rheumatism or rheumatic fever is normally preceded by an acute infection of the fauces with a hemolytic streptococcus, which often is only of slight severity. It is usually a clinically mild and transient infection of the throat that precedes the most severe attacks of rheumatic fever. After this there is a symptom-free interval of from a few days to a few weeks before the onset of rheumatic symptoms. Further attacks, or recurrences, of acute rheumatism are similarly preceded by streptococcal pharyngitis. There is little room for doubt, then, that acute rheumatism is caused by streptococcal infection, but the mechanism by which the effect is produced is still uncertain. It does not appear to be a septicemia, and suppuration never occurs; it seems rather to be related to a faulty method of dealing with bacterial toxins. There seems to be a definite delay in the immune responses of rheumatic, compared with those of nonrheumatic, people, and the patient who develops an attack of rheumatic fever "handles the products of the hemolytic streptococcus in a peculiar way" (Coburn). It would seem to be this peculiar response which determines the incidence of acute rheumatism. The incidence of acute infection of the fauces is diminished by tonsillectomy. When, therefore, a sore throat has been followed by rheumatic fever, it is proper that the tonsils should be removed. But numerous smaller nodules of lymphoid tissue remain scattered over the pharynx, and acute pharyngitis can and does occur after tonsillectomy, so that this operation does not with certainty prevent recurrence of acute rheumatism, though it makes it less probable.

Medical Journal of Australia, Sydney

2: 839-872 (Dec. 19) 1936

- Determination of Blood Compatibility Before Blood Transfusion and Avoidance of Subsequent Reactions. Hilda J. Gardner.—p. 839.
Technic of Continuous Intravenous Administration of Glucose-Saline Solutions and Blood. I. J. Wood.—p. 843.
Plastic Surgery to the Face for Deformity and Contractures After Nitric Acid Burns. R. A. Money.—p. 848.
The Specialist Anesthetist: Has He Improved the Standard of Anesthesia? R. H. Orton.—p. 853.

2: 873-900 (Dec. 26) 1936

- Fractures of Lower End of Humerus and Their Complications. S. H. Scougall.—p. 873.
Fractures Around the Elbow Joint. L. Buchanan.—p. 881.

Tubercle, London

18: 145-192 (Jan.) 1937

- Studies of Properties of Some Strains of Tubercle Bacillus. E. M. Fraenkel and R. J. V. Pulvertaft.—p. 145.
Chronic Miliary Tuberculosis. L. Sayé.—p. 153.
Relationship Between Moist Weight and Numbers of Total and Viable Organisms in Cultures of Tubercle Bacilli. G. S. Wilson and Herta Schwabacher.—p. 161.
Prophylaxis of Severe Reactions in Gold Salt Therapy. J. Wilson.—p. 168.

Chinese Medical Journal, Peiping

50: 1707-1898 (Dec.) 1936

- Benign Hypertrophy of Prostate. H. L. Chang and G. Y. Char.—p. 1707.
*Studies on Transmission of Relapsing Fever in North China: I. Preliminary Observations. H.-L. Chung.—p. 1723.

Transmission of Relapsing Fever in North China.—Chung declares that the majority of patients with relapsing fever seen at the Peiping Union Medical College Hospital harbor human body lice. This fact together with the geographic, climatic and other epidemiologic factors lends support

to the view that relapsing fever in North China is essentially a louse-borne disease. The fact that he has been successful in recovering spirochetes from body lice captured from patients constitutes evidence in favor of this view. That bedbugs may play a part in the spread of relapsing fever has not received due attention. It is likely that, when a systematic examination is made of bedbugs recovered from the belongings of relapsing fever patients, infected bugs will be found more often than would be anticipated. The author has shown that bedbugs can be infected with *Spirochaeta recurrentis* by feeding on Chinese squirrels experimentally infected with relapsing fever. *Spirochaeta recurrentis* can survive at least twenty-five and one-half hours in bedbugs and remain virulent for the squirrel. Bedbugs may serve as vectors in the spread of the disease. Infection can take place easily through contact of the organisms with the normal skin or mucous membranes.

Journal of Oriental Med., Dairen, South Manchuria

25: 91-124 (Dec.) 1936

- Sweating During Running. I. Iwatake.—p. 91.
Influence of Intake of Salts on Metabolism at High Surrounding Temperature. S. Ito.—p. 93.
Insensible Perspiration from Surface of Blister. K. Takahara.—p. 94.
Sweat Secretion of Children. J. Adachi.—p. 95.
Sweating Due to Inhalation of Carbon Dioxide in Man. J. Adachi.—p. 97.
Sweat Reflexes Due to Changes in Posture of Human Body: II. Changes in Sweating on Lying and Standing. K. Ogata and T. Ichihashi.—p. 98.
Changes in Human Insensible Perspiration Due to Exposure to Cold. T. Yabuki.—p. 100.
Effect of Drugs on Sweat Glands by Cataphoresis, and an Effective Method for Suppression of Local Sweating: I. Observations on Effect of Diaphoretics and Adiaaphoretics. T. Ichihashi.—p. 101.
Id.: II. Paths of Cataphoresis in Skin, and Influence of Respiratory Conditions on Cataphoretic Effect. T. Ichihashi.—p. 103.
*Id.: III. Antisudorific Effect of Formalin by Cataphoretic Application, and Its Practical Use. T. Ichihashi.—p. 105.
Method of Observing Sweat Drops on Skin Covered with Oil, and Several Observations with This Method. T. Ichihashi.—p. 107.
Changes in Human Sweating During Sleep. T. Kosuge.—p. 109.
Experiments on Effect of Diaphoretics and Adiaaphoretics. K. Kashiwabara.—p. 111.
Anhidrotic Phenomena of Febrile Cat. K. Kashiwabara.—p. 116.
Plethysmographic Observations on Reflex Changes in Skin Vessels. K. Takahara and T. Yabuki.—p. 117.
Changes in Human Arterial Pressure Due to Exposure to Cold. T. Ichihashi.—p. 119.
Functional Variations in Human Sweat Glands: II. Comparative Study of Sweating Due to Exposure to Heat and That Caused by Pilocarpine. K. Ogata.—p. 120.
Some Preliminary Experiments on Significance of Wetness Inside Shoes on Occurrence of Frost-Bite. T. Ichihashi.—p. 121.
Racial Variations in Sweat Secretion on Axilla. K. Kashiwabara and K. Ogata.—p. 122.

Method for Suppression of Local Sweating.—Ichihashi used repeated applications of formaldehyde by cataphoresis for the treatment of hyperhidrosis. This was done with great success in thirteen patients suffering from excessive hyperhidrosis of the palms and soles, seven suffering from hyperhidrosis of the axilla and fifteen who suffered from osmidrosis. It was especially successful in the case of palmar hyperhidrosis. A treatment consisting of three or four cataphoretic applications stopped the suffering entirely for at least one and one-half months, sometimes longer than two months. But strong hornification of the skin, followed by desquamation, occurred in the treated region of the skin. In the axilla, a strong application, such as to cause desquamation, could not be used. But the hyperhidrotic suffering could be cured for about one month or longer by a series of applications. In osmidrosis, this treatment was less successful so that a good effect could be expected for only two or three weeks. This was probably because suppression of the generation of the odor was possible only as long as the secretion was entirely stopped. On the palms and soles, a 7.5 to 10 per cent solution of formaldehyde will be cataphorized with a current of one-third to one-half milliampere per square centimeter of skin for ten minutes. For the axilla, the solution should be from 5 to 7.5 per cent, and the current from one-fourth to one-third milliampere per square centimeter of skin for five minutes. The anode should be applied to the regions to be treated and the cathode to some indifferent part of the skin. These procedures should be repeated three or four times at intervals of about two days.

Annales de Parasitologie, Paris

25: 1-96 (Jan. 1) 1937

- Spirocerca Sanguinolenta* (Rudolphi, 1819) in Dogs of Madrid. J. Goyanes Alvarez.—p. 1.
 Research on Some New and Less Known Monogenetic Trematodes. L. Gallien.—p. 9.
 *Experimental Studies in Treatment of Lambliasis. Irazabal-Luigui.—p. 29.
 Contribution to Study of Opalinidae of Brazilian Batrachians. A. Carini.—p. 46.

Treatment of Lambliasis.—Irazabal-Luigui, reviewing the treatments of *Giardia intestinalis*, notices that almost all mineral and organic substances having an antiseptic or antiparasitic action have been tried and have failed. The disease resists every therapeutic measure because no specific remedy has as yet been discovered. In his effort to make that discovery he infected a number of white mice and began treating them with medicaments recently used and advocated by others. First of these was *Jacaranda decurrens*, known as tincture of carobine, allegedly used by Peckolt and Prado with excellent results. But the medicament did not seem to affect his mice in the least and it was not even toxic. The author then made experiments with pyrethrine, gentian violet and acetarsone with negative results. Resorting to naphthalene, previously used by Sorge, he administered the purified substance in increasing doses. Only one good result was obtained in a mouse with a feeble infection. Finally he continued his experiments with essence of turpentine, with which Deglos, Escomel and others had obtained good effects and which he administered in a mucilaginous solution. Of ten mice, six were decidedly freed of parasites so that at necropsy no live forms were found. Two others of the ten were notably improved and in two the drug proved itself ineffective. From the results obtained the author draws the conclusion that essence of turpentine, although no specific remedy, is capable of rendering good services in the treatment of lambliasis.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

53: 121-156 (Feb. 8) 1937

- Neuro-Anemic Syndrome and Sclerocarcinoma Stenosis of Pylorus. J. Caroli, Mlle. M. Tissier and J. Mallarmé.—p. 122.
 Hemorrhagic Syndrome with Agranulocytosis in Case of Chronic Diarrhea Treated with Arsenical Pentavalent. J. Caroli and J. Mallarmé.—p. 129.
 Ovarian Hemogenia with Metrorrhagia and Epistaxis: Ovarian Roentgen Therapy, Cure. Loeper, R. Fau and A. Varay.—p. 134.
 *Spasmodic Intestinal Complications in Pernicious Anemia: Pseudo-stricture, Subocclusion. P. Émile-Weil and Menetrier.—p. 145.
Diplococcus Pharyngis Flavus III: Meningitis in Parotitis. Brunel and Dérobert.—p. 148.
 Heredosophilic Tabes with Labyrinthitis in Adults and Children. C. I. Urechia.—p. 151.

Spasmodic Intestinal Complications in Pernicious Anemia.—In the course of Biermer's anemia there are signs of gastric pseudotumors which clinically have the symptoms of pyloric constriction and roentgenologically look as though the pylorus were amputated. These disorders seem to be due to muscular spasms of dyspeptic patients and disappear with Biermer's liver treatment. Émile-Weil and Menetrier present two cases of pernicious anemia. In one there were symptoms of intestinal constriction with physical and functional disorders, and in the other signs of incomplete intestinal occlusion with painful crises lasting for about two weeks. In the first case an exploratory operation was done and no intestinal or gastric lesions were found. The patient has now been well for three years under liver treatment. In the second patient, who had a painful intestinal tumor in the right hypochondrium and who often had symptoms of occlusion, belladonna and liver extract brought about complete cessation of symptoms, which have not returned since the blood picture was improved.

Presse Médicale, Paris

45: 137-152 (Jan. 27) 1937

- Inflammation of the Lips from Lipstick. A. Sézary and A. Horowitz.—p. 137.
 *Pure Antivariola Viruses and Subcutaneous Vaccination. E. Gallardo and J. Sanz.—p. 139.
 Purgative Action of Castor Oil. R. Hazard.—p. 142.

Antivariola Viruses.—Gallardo and Sanz cultured variola viruses in vitro and on the allantoïd of the chicken embryo and reproduced the characteristics of their original species. An

embryo of about ten or twelve days is deprived of its eyes and well washed with Tyrode's solution. It is placed in a large watch glass and finely chopped by means of the curved scissors used by ophthalmologists. Then from 7 to 8 cc. of Tyrode's solution is added. To each 4.25 cc. of Tyrode's solution previously distributed into small bottles they add 0.25 cc. of this embryonic suspension. For cultures in 50 cc. bottles they begin with 0.5 cc. of the virus of known purity and activity. The following is the formula: Tyrode's solution 4.25 cc., embryonic suspension 0.25 cc., initial or passage virus 0.5 cc. For larger bottles this formula is proportionately increased. Under such conditions a filtrate will furnish a pure lymph, rich in virus. Subcutaneous vaccination with cultures in vitro or on allantoïd gives a positive reaction similar to that obtained with the best lymphs used on the skin. This virus gives local and general reactions which are less intense than in skin vaccinations; no reaction indicates probable immunity. Pustules are not formed.

45: 169-184 (Feb. 3) 1937

- High Blood Pressure Caused by Alkali Reserve and Its Influence on Humoral and Clinical Disturbances in Renal Insufficiencies. R. Huguenin, C. Sannic and R. Truhaut.—p. 169.
 Koch's Bacillus in Gastric Contents Taken from Fasting Stomach and Its Value for Diagnosis in Pulmonary Tuberculosis. P.-F. Armand-Delille and G. Kerambrun.—p. 172.
 *New Procedure of Blood Withdrawal for Culturing Based on Epinephrine-Induced Spleen Contraction in Typhoid. N. O. Irdelp, M. Guchan and C. Ugan.—p. 174.

Withdrawal of Blood for Culture in Epinephrine-Induced Spleen Contraction.—Irdelp and his collaborators withdraw blood before and after the injection of 1 mg. of epinephrine hydrochloride. This was done in forty-nine cases of typhoid with the object of inducing a spleen contraction in an effort to drive the micro-organisms into the blood stream. In 59.5 per cent of the cases it was shown that the preceding injection of epinephrine noticeably increases the possibilities of positive results in blood culture. It is advisable to use the method in other infectious diseases as well.

Progrès Médical, Paris

Jan. 16, 1937 (No. 3) Pp. 81-120

- *Treatment of Burns by Applications of Vitamin A. Chevallier, F. Carcassonne and Luccioni.—p. 89.
 Obesity in the Child. S. B. Briskas.—p. 90.

Vitamin A in Treatment of Burns.—A patient with burns is not only wounded but in danger from resorption of toxins, and cellular recovery is slowed through local and general circumstances. Having occasion to study the effect of vitamin A on the scar formation of wounds, Chevallier and his associates applied it to five severe burns with the result that recuperation was rapid, pain disappeared, the temperature came back to normal and the scars remained soft and pliable. They spread a solution of vitamin A in cod liver oil on sterile gauze. Later dressings consisted of applications of a solution of 0.25:1,000 of methylene blue alternating with vitamin A. The general condition was restored and a good tendency to healing appeared after five days in three cases. In the two other grave cases admitted a few days after the accident the same results were obtained in twenty-five and twenty-eight days, respectively. It seems that vitamin A is absorbed in large quantities, turning the local into a general treatment. The authors do not mention the percentage of vitamin A used.

Schweizerische medizinische Wochenschrift, Basel

67: 133-152 (Feb. 13) 1937. Partial Index

- Present Status of Postoperative Complications. P. Decker.—p. 133.
 *Use of Ichthammol in Wound Treatment. E. Bosch.—p. 138.
 Changes in Vertebral Column After Tetanus. O. Winterstein.—p. 139.
 Treatment of Nonreducible Congenital Dislocation of Hip Joint by Means of High Diaphyseal Osteotomy. M. R. Francillon.—p. 140.
 *Relaxation of Diaphragm. G. Töndury.—p. 142.
 Treatment of Traumatic Central Dislocation of Hip Joint. M. Richard.—p. 144.

Ichthammol in Wound Treatment.—Bosch says that, applied to the skin, ichthammol exerts a vasoconstrictive effect and produces epithelization. After he had heard from Bleuler that ichthammol can be used in the form of a 5 per cent aqueous solution for moist applications, he decided to use this solution whenever an antiphlogistic action was required; that is, in infected wounds. In doing this he observed that the inflammation was reduced and that there was also a noticeable

decrease in the wound secretion. The latter characteristic was especially noticeable in case of infected surface wounds. The author repeatedly noticed cases in which considerable pus secretion disappeared twenty-four hours after the application of the ichthammol compress and he concluded that the aqueous solution of ichthammol in the partially moist chamber (gutta percha cover over the compress) exerts a destructive effect on the bacterial flora. In order to verify this effect, he tested the bactericidal effect of the solution in vitro and found it especially powerful against hemolytic streptococci, but also against enterococci and pyococci. The colon bacillus, however, was an exception. The author tried the solution in fresh accidental wounds, in those that had been sutured as well as in those that had not been sutured, and found it quite satisfactory. As a special advantage he stresses that the change of bandage is painless, even if the compress has dried.

Relaxation of Diaphragm.—Töndury defines relaxation of the diaphragm as a unilateral elevation, which is usually on the left side and which frequently causes disorders. He says that reports about this condition discuss the clinical and roentgenologic aspects and the differential diagnosis but that few give information about the anatomic aspects. He therefore describes the anatomic and microscopic aspects of two cases that came to necropsy. In the first case the elevated left half of the diaphragm was thin; its muscle fibers were atrophic and separated and the phrenic nerve was degenerated. The author thinks that the degeneration of the phrenic nerve resulted in the muscular atrophy. In the second case, however, the muscular atrophy was primary and the atrophy of the phrenic nerve was secondary. In the latter case a dextroconvex dorsal scoliosis and a levoconvex lumbar scoliosis of the vertebral column was a genetic factor in the relaxation of the diaphragm.

Archivio per le Scienze Mediche, Turin

63:1-160 (Jan.) 1937

- Experimental Traumatic Shock: Modifications of Respiration. C. Colombo.—p. 1.
Metabolism of Proteins in Normal Persons and in Diabetic Patients During Fasting and After Administration of Dextrose. E. Slavich and A. Torrini.—p. 45.
Dermoid Cyst of Anterior Mediastinum and Metastatic Pulmonary Cancer: Case. G. Lanza.—p. 71.
*Relation Between Intermediary Metabolism of Carbohydrates and Energy Metabolism. P. Stefanutti.—p. 123.
Distribution of Uric Acid in Plasma and Globules in Human Blood. S. Battistini and F. Quaglia.—p. 151.

Relation Between Intermediary Metabolism of Carbohydrates and Energy Metabolism.—Stefanutti studied the variations of the respiratory quotient and of glycemia in normal persons, in diabetic patients and in patients suffering from heart diseases (compensated and decompensated) after administration of dextrose by mouth, with and without simultaneous administration of a subcutaneous injection of insulin. Oral administration of dextrose induces a moderate increase of the specific dynamic action and of the respiratory quotient in normal persons and slight and irregular metabolic variations (or none at all) in diabetic patients and in persons suffering from heart diseases. In normal persons the respiratory quotient increased less by simultaneous administration of dextrose and insulin than by dextrose alone, and the specific dynamic action was abolished. In diabetic patients and in persons suffering from heart diseases the respiratory quotient and the specific dynamic action greatly increased by the associated administration of dextrose and insulin. According to the author, the specific dynamic action which follows administration of dextrose by mouth is less intense than that induced by proteins. It is due to an increase of intra-organic combustions during the process of direct oxidation of dextrose and is slight (or does not take place at all) in persons suffering from functional disturbances of gastric absorption or of the intermediary metabolism of the carbohydrates. The latter is disturbed in diabetic patients as well as in those suffering from heart diseases. The different behavior of insulin on the specific dynamic action of normal persons, diabetic patients and those suffering from heart diseases is due to the fact that in normal persons the insulin stimulates the formation of liver glycogen, whereas in the others it improves the metabolism of carbohydrates with consequent complete oxidation of the sugars.

Giornale di Clinica Medica, Parma

18:1-76 (Jan. 20) 1937

- Bromide in Animal Organism. G. Moruzzi.—p. 1.
*Points of Contact Between Tuberculosis and Rheumatic Fever. M. Pellegrini.—p. 7.
Gastric Aneurysm: Anatomic Study of Case. A. Bianchedi.—p. 23.
Etiology and Treatment of Seasickness, Airplane and Railroad Sickness and Vomiting in Pregnancy. A. Schweitzer.—p. 37.

Tuberculosis and Rheumatic Fever.—Pellegrini reports three cases of pulmonary tuberculosis in association with rheumatic fever. In the differential diagnosis the history of the patient is of value in showing previous or actual contact with tuberculous patients or occurrence of local inflammation and infection, especially in the throat, pharynx, upper respiratory tract and teeth. The different types of fever and sweats, the results of the physical examination of the thorax and of the tuberculin and the speed of sedimentation tests and the presence of certain alterations in the blood, which are different in pulmonary tuberculosis and in rheumatic fever, are also of value. The favorable results of the administration of salicylate is the most important fact in the differential diagnosis. According to the author, there is no antagonism between rheumatic fever and pulmonary tuberculosis. The coexistence of the two diseases is frequent. The symptoms of one or the other disease may prevail, they may run parallel or they may alternate. It is possible that the viruses of the two diseases have reciprocal etiopathogenic relations owing to certain phenomena of the nature of Sanarelli-Schwartzman's phenomenon.

Oto-Rino-Laringologia Italiana, Bologna

6:495-582 (Dec.) 1936

- Osteitis of Petrous Bone: Clinical and Critical Study. P. Caliceti.—p. 495.
Fine Vascularization of Human Larynx. P. Carco.—p. 506.
Fronto-Ethmoidal Mucocele: Clinical, Roentgen and Surgical Study of Cases. G. Zanni.—p. 522.
Spontaneous Elimination of Thyroid Cartilages from Typhoid Phlegmonous Chondroperichondritis: Case. U. Bombelli.—p. 536.
Recurring Abscess of Cerebellum: Case. E. Giuffrida.—p. 546.
*Periarterial Sympathectomy and Roentgen Irradiations in Treatment of Tuberculous Laryngitis. E. Rubaltelli.—p. 558.
Relation Between Obstruction of Nose and Development of Paranasal Sinuses. S. Barbera.—p. 563.

Treatment of Tuberculous Laryngitis.—Rubaltelli reviews the literature and states that the results obtained with either periarterial sympathectomy or roentgen treatment in tuberculous laryngitis are identical. Both treatments control mechanical painful dysphagia and produce reflex intralaryngeal vasodilatation. The results reported in the literature concerning the effects of either treatment on infiltration or ulceration of the laryngeal mucosa are conflicting. The roentgen treatment is preferable to sympathectomy. It can be administered in all cases, regardless of the local condition of the disease and of the general condition of the patient. If the roentgen treatment is given in the precise dose and with the proper technic, accidents and complications do not follow. It is advisable to avoid, whenever possible, bleeding, prolonged or complicated operations in tuberculous patients. The roentgen treatment can be given as an ambulatory treatment and be repeated at certain intervals. The benefits of repeated roentgen therapy are more lasting than those obtained from sympathectomy.

Pediatria, Naples

45:1-96 (Jan. 1) 1937

- Reciprocal Action of Diphtheria Bacilli and Human Leukocytes With or Without Antitoxin: Experiments in Vitro. P. Ritossa.—p. 1.
*Total Acidity and Lactic Acid in Blood Serum of Infants. C. Cammarella.—p. 15.
Typhoid in Children: Clinical and Bacteriologic Study. A. Naccari.—p. 33.
Value of Provoked Anisocoria in Diagnosis of Otitis Media in Children. S. Jannuzzi.—p. 39.
*Grave Syndrome of Myelradicular Neuritis in Course of Atabrine Therapy: Case. P. Valentini.—p. 51.
Duodenal Ulcer in Child: Case. F. Menna.—p. 60.

Total Acidity and Lactic Acid in Blood Serum of Infants.—Cammarella determined the relation between the total amount of organic acids and lactic acid in the blood serum of infants in normal and pathologic conditions, using the Csapó and Mendel-Goldscheider methods. The figures obtained for organic acids varied between 9.1 and 13.8 of a tenth normal

solution of acids per hundred cubic centimeters of blood serum of normal infants. The amount of lactic acid of normal infants varied between 20.5 and 50 mg. per hundred cubic centimeters, depending on the psychomotor activity of the infant at the time of blood withdrawal. In general, the figures for the total organic acids, lactic acid and other organic acids are the same in normal infants, children and adults. In pathologic cases the behavior of lactic acid does not parallel that of total organic acids. In cases of laryngospasm the figures for lactic acid are high, whereas those for the total organic acids are normal (diminution of the remaining organic acids in the blood). In cases of bronchopneumonia and of toxicosis the figures for lactic acid are high or normal and those for the total organic acids are high. The lack of parallelism between the amount of total organic acids and lactic acid in the blood serum of infants in pathologic conditions shows that the metabolism of carbohydrates is not necessarily involved in the disturbances of the intermediary metabolism. The involvement of the metabolism of the carbohydrates in the pathologic process depends on the intensity of the hepatic dysfunction induced by the pathologic process. The increased total organic acidity is due to increased production of organic acids and decreased renal elimination with consequent retention and accumulation of the acids in the blood.

Myeloradicular Neuritis in Course of Treatment with Atabrine.—Valentini points out the toxicity of atabrine (an amino acridine derivative) in the treatment of malaria in children and advises that small doses be used. A case of acute cerebrospinal polyneuritis in a child who was given this drug is reported in the literature (Moschini). The author reports a case of grave myeloradicular neuritis in a child, aged 5 years, who suffered from malaria and was given a daily dose of 0.03 Gm. for five consecutive days. The patient developed a syndrome of grave flaccid paralysis of the muscles of the trunk and of the extremities and disturbances of respiration and of the liver and vomiting. The immediate treatment consisted of hypodermoclysis, stimulants and tonics, as well as belladonna for controlling the vomiting. Later strychnine, epinephrine, iron and arsenic were given, diathermy was applied, and physical and respiratory exercises were performed by the patient. The grave symptoms ameliorated but those produced by disturbances of the nervous system have remained stationary for eighty days.

Rassegna di Terapia e Patologia Clinica, Naples

8: 641-704 (Nov.) 1936

Colloidal Lability and Obstruction Phenomenon in Urine. C. Franzolin.—p. 641.

*Revival of Male Breast. A. Visani.—p. 650.

Lipases in Blood Serum in Normal and Pathologic Conditions. L. Franzi.—p. 665.

Poisoning from Snake Poisons. L. Franzi.—p. 693.

Revival of Male Breast.—Visani reports four cases of revival of the breast in men who were suffering from different diseases. None of the patients showed alterations of the genitalia. According to the author, gynecomasty may originate in endocrine, constitutional, nervous, infectious, humoral or circulatory disturbances. The most important pathogenic factor is the presence of circulatory stases in the region of the breast. When the organic disturbance that produces gynecomasty in the given case is favorably modified, the hypertrophy of the breast regresses. The treatment should aim at controlling the organic disturbances which cause gynecomasty. Amputation of the breast is an unnecessary mutilation because gynecomasty is merely a symptom of an organic disturbance.

Deutsche Zeitschrift für Chirurgie, Berlin

248: 411-514 (Jan. 15) 1937. Partial Index

Plastic Operation on Lids and Handle-Pedicle Flap. H. von Seemen.—p. 411.

Reparative Processes in Fracture of Vertebra: Particular Attention to Traumatic Spondylitis Deformans. A. Lob.—p. 452.

Treatment of Benign Gastric Tumors. V. Struppler.—p. 467.

*Control of Bleeding with Autogenous Tissue. Heilingbrunner and Schörcher.—p. 475.

Control of Bleeding.—According to Heilingbrunner and Schörcher, cessation of bleeding is a complicated physiologic process. Cessation of bleeding and blood coagulation are two

independent processes. Bleeding from a severed vessel comes to an end not because of the formation of a thrombus but because of a contraction of the vessel. Several factors play a part in the stoppage of bleeding. A blood clot cannot form as long as blood continues to flow; therefore slowing of the blood current in the severed vessel is the most important condition for coagulation. The contraction of the severed vessel serves this purpose. Contraction of the severed vessel leads to the agglutination of its walls, in which event formation of a thrombus is no longer necessary for the arrest of bleeding. Magnus demonstrated in man that a severed capillary in the bed of a nail contracts in its entire length and remains permanently contracted. In the case of larger vessels the initial contraction is followed by relaxation and it is at this moment that thrombus formation takes place and plays its part. Thus the formation of a blood clot is the final act in the cessation of bleeding. The authors demonstrated in their experiment that the addition of watery extract of macerated autogenous muscle or fat tissues to the human blood reduced its coagulation time by one half. They believe that this effect is due to the mechanical effect of interfering with the blood flow and to the thrombokinase released from the tissue by maceration. Peritoneal tissue, when applied to a bleeding surface, had no effect, but, when it was macerated, the effect was at once evident. Macerated thyroid tissue was not more effective than muscle or fat. The authors applied muscle or fat tissue to the abraded surface of the liver of a rabbit and observed that the bleeding was arrested in from two to three minutes, whereas the surface not so treated continued to bleed. Bleeding from an abraded skin surface of the hind leg of a rabbit was stopped in from one to one and one-half minutes by application of macerated muscle or fat tissue, whereas the portion not so treated continued to bleed for from four to five minutes. The authors likewise found this method effective in arresting bleeding in surgical procedures on the brain in dogs.

Klinische Wochenschrift, Berlin

16: 145-184 (Jan. 30) 1937. Partial Index

Raynaud's Disease and Neurosympathetic-Hormone System. P. Sunder-Plassmann and K. Müller.—p. 152.

*Myeloid Reaction in Diseases of the Blood. F. E. Schmengler and F. Krause.—p. 156.

*Diabetes Mellitus, Gallbladder and Obesity. A. Terbrüggen.—p. 161.

Contusion Pneumonia and Atelectasis. F. Fleischner.—p. 163.

*Gastric Acidity and Calcium Metabolism. W. Thiele.—p. 165.

Bronchial Peristalsis: Physiology of Expectoration. T. Gordonoff and N. Scheinfinkel.—p. 167.

Chronic Carbon Monoxide Poisoning. W. Heubner.—p. 168.

Myeloid Reaction in Diseases of the Blood.—Schmengler and Krause report three cases of panmyelophthisis and one case of aleukemic myelosis, in all of which there was toward the end a considerable flooding out of myeloid cell forms. The authors interpret these cases as the result of the blockage of the bone marrow, the cause of which is unknown, although hypersplenism might have played a part in the case of aleukemic myelosis. Later, as the result of the interruption of the blockage, a myeloid reaction followed. In two cases the interruption of the blockage was probably effected under the stimulus of the constant loss of blood, in another case under the influence of a superimposed secondary general infection and in the fourth case perhaps by the exclusion of the influence of the spleen after splenectomy. The first three cases showed only a myeloid reaction, not a leukemia. In the fourth case the aleukemic phase was followed, as in the first three, by a leukemoid one. To be sure there was the difference that in this case there was a true leukemia from the beginning and a leukenemia was simulated in the aleukemic stage of this leukemia. The possibility of the transition of true agranulocytosis and of true panmyelophthisis into acute leukemia is rejected by the authors.

Diabetes Mellitus, Gallbladder and Obesity.—Terbrüggen decided to make a statistical analysis of a necropsy material with regard to the connection existing between age, obesity and cholecystopathy and between age, obesity and diabetes mellitus. In diabetic patients of less than 50 years of age, he never noticed a combination with cholecystopathy. In diabetic patients between the ages of 30 and 50, obesity was compara-

tively frequent and in those beyond the age of 50 it was extremely frequent. The author thinks that the concurrence of diabetes with gallstones is not so frequent as to suggest a causal connection with diabetes mellitus; thus there is no reason to regard diabetes mellitus as a sequel to biliary disease. The author explains the concurrence of biliary disorders and diabetes mellitus as the result of obesity, which occurs in both conditions. He suggests that on the one hand obesity favors the development of biliary disorders, and, on the other hand, in case of a predisposition, it also leads to the manifestation of diabetes mellitus.

Gastric Acidity and Calcium Metabolism.—Thiele demonstrates that the calcium content of the blood and the acidity of the stomach run parallel; that is, the calcium content is the higher, the greater is the acidity of the stomach. The calcium values of the blood are especially low in gastric carcinoma. The intravenous administration of calcium effects an increase in the gastric acidity.

Medizinische Klinik, Berlin

33: 149-184 (Jan. 29) 1937. Partial Index

- Structural Changes of Mechanical Origin in Organs Removed During Operation or Necropsy. L. Aschoff.—p. 149.
Engorged Kidney. S. Litzner.—p. 150.
Treatment of Diabetes Mellitus in Children. E. Müller.—p. 152.
Thyroid and Circulation. J. Rühl.—p. 154.
*Significance of Electrocardiographic Changes for Prognosis of Myocardial Diseases. H. May.—p. 157.
Investigations on Problem of Pellagra. F. Lucksch.—p. 159.

Electrocardiographic Changes and Prognosis of Myocardial Diseases.—May points out that, although it is comparatively simple to determine the existence of a myocardial defect from the electrocardiogram, it is difficult to estimate the condition of the cardiac muscle from a single electrocardiographic record. One electrocardiographic examination indicates only the presence of changes but not how long they have existed. In this connection the author directs attention to the electrocardiographic records of branch block in older persons who feel slight or no discomfort. However, a careful anamnesis frequently reveals that cardiac symptoms existed a long time before. It is probable that changes developed at that time but that subsequently the basic disorder was arrested and the electrocardiographic change was the only sign that remained. New myocardial lesions become manifest in rapidly changing electrocardiograms. In this connection the author mentions the rapidly (daily or even hourly) changing electrocardiographic records in myocardial lesions that are caused by changes in the coronary vessels or by diphtheritic lesions in the cardiac muscle. The most important characteristic of the new myocardial lesion is the cessation of the uniformity of the electrocardiogram. The author describes a series of electrocardiograms that were made in the course of several weeks of a woman, aged 48, who complained of fatigue, numbness in the hands and feet, occasional swelling of the feet and attacks of cardiac oppression. The electrocardiographic records made at intervals of several days revealed various changes in the cardiac conduction system. The author shows the difficulties that are encountered in the interpretation of the successive electrocardiograms, but he says that, in spite of the fact that at first there was a lack of symptoms, the constantly changing electrocardiographic records indicated an unfavorable prognosis. This was later corroborated by the development of a circulatory insufficiency.

Münchener medizinische Wochenschrift, Munich

83: 2073-2112 (Dec. 18) 1936. Partial Index

- Hereditary and Constitutional Factors in Some Blood Diseases. P. Morawitz.—p. 2073.
Vitamin C in Treatment of Pneumonia. J. Gander and W. Niederberger.—p. 2074.
*Has Klein's Reaction Practical Value for Diagnosis of Cancer? Lönne.—p. 2077.
Orthopedic Treatment of Dupuytren's Contraction. G. Hohmann.—p. 2088.

Value of Klein's Reaction for Diagnosis of Cancer.—Lönne points out that the method for the diagnosis of cancer which Klein developed on the basis of the studies of Freund and Kaminer has been widely discussed recently but that only

a few have doubted the value of this reaction. For this reason he feels justified in reporting the results that were obtained in his own material of ninety-eight cases. Only sixty-nine fulfilled the requirements for the test and twenty-five of this number had clinically demonstrated cancer while forty-four were free from it. Two specimens from many of these patients were submitted for testing, with the result that the reaction showed positive as well as negative results in some cases. Only one specimen each of nine patients with cancer was tested and three gave a positive reaction while six gave a negative, that is, an incorrect, result. In the forty-four patients without cancer the reactions showed a higher percentage of correctness, but, of the group of thirty-five in whom double tests were made, seven gave positive as well as negative reactions. A survey of the entire material reveals 72.5 per cent correct and 27.5 per cent incorrect reactions. The author thinks that the test can be considered of definite value only if a correctness of at least 90 per cent can be reached and therefore he rejects the general use of the reaction in its present form.

Wiener klinische Wochenschrift, Vienna

50: 147-178 (Feb. 5) 1937. Partial Index

- *Peritonitis a Circulatory Problem. R. Friedrich.—p. 153.
Hepatorenal Disturbance. R. Uebelhör.—p. 155.
Case of Paralysis of Brachial Plexus in Postdiphtheric Polyneuritis. M. Reger.—p. 162.
Treatment of Bronchial Asthma with Insulin Shock. J. Wegierko.—p. 163.
Diabetes in Children. R. Wagner.—p. 165.

Peritonitis a Circulatory Problem.—Friedrich shows that the peripheral circulation should receive attention in the treatment of peritonitis. If the patient survives the circulatory crisis, he is usually out of danger. After explaining the development of the circulatory impairment, the author points out that the choice of the anesthesia is important. General anesthesia impairs the splanchnic circulation and therefore it is advisable to use local anesthesia. The author thinks that local anesthesia can be used in peritonitis more often than is generally assumed. The exteriorization of the intestine and especially the size of the surgical wound are important factors. The postoperative pain usually increases with the size of the wound, and the greater the pain the greater the impairment of the abdominal respiration, an important factor in the circulation. In discussing the measures for the improvement of the circulation, the author points out that it is a mistake to pay attention chiefly to the heart, for in the beginning it is only secondarily involved, the main problem being to draw the blood away from the splanchnic vessels. In view of this fact, it is not surprising that cardiac stimulants often fail in peritonitis. However, the prolonged withdrawal of blood from the heart is not tolerated for long and therefore it is advisable to introduce more fluid into the circulation; but, since a sudden increase in the quantity is inadvisable, the author recommends continuous drop infusion. In addition to the administration of fluid, vasotonics, particularly adrenal preparations, are helpful. The author directs attention to the influence of the intestinal peristalsis on the splanchnic vessels. He emphasizes the importance of normal respiration for the circulation in the system of the portal vein and shows that carbon dioxide is valuable in stimulating the respiratory center. Application of heat, particularly in the form of sterile fomentations directly on the skin of the abdomen, are helpful.

Polska Gazeta Lekarska, Lwów

16: 81-96 (Jan. 31) 1937

- *Researches on Contents of Epinephrine in Blood in Cases of Disease of Kidneys and Relation to Arterial Hypertension and Liberation of Nitrogenous Substances. Z. Czeżowska, J. Jaworska and P. Kubikowski.—p. 81.
Modern Views on Therapy of Ulcer of Stomach and Duodenum. S. Rawicz.—p. 84.
New Surgical Sound. L. Achmatowicz.—p. 86.
Therapy of Arthritis by Vaccination of Bacteria of Tonsil Grown on Culture Medium. J. W. Jankowski and Aniela Wojciechowska.—p. 87.
Physician and Patient. A. Kuhn.—p. 88.

Epinephrine in Blood in Diseases of Kidneys.—Czeżowska and his collaborators have studied eighteen patients suffering from acute, subacute and chronic glomerulonephritis, pyonephritis, nephrosis and other forms of kidney diseases. They conclude that the content of epinephrine in the blood is increased

in cases of kidney disease with high blood pressure. There is a positive but not wholly parallel relationship between high blood pressure and the degree of hyperepinephrinemia. This observation does not concern patients with general anatomic changes of the organs. There is a relation between the decrease of nonalbuminous nitrogenous substances in the system and increased liberation of epinephrine and arterial hypertension. This connection is made evident through the amount of nitrogenous substances liberated according to whether the disease gets worse or the condition of the kidney improves. The increase of epinephrine in the circulation is not the only or the most important cause of hypertension in diseases of the kidney; hypertension may result from more complicated mechanisms.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

37: 1-152 (No. 145) 1937. Partial Index

- Operative Treatment of Hallux Valgus. D. E. Shklovskiy.—p. 17.
Pathogenesis and Treatment of Cardiospasm. V. V. Krestovskiy.—p. 31.
Late Results of Resection for Chronic Gastroduodenal Ulceration. I. I. Rybak.—p. 47.
Lowering Mortality Rate of Perforation Peritonitis in Typhoid Patients. A. P. Tsulukidze.—p. 59.
Symptoms and Treatment of Ileus Due to Ascarides. I. A. Garber.—p. 63.
*Transfusion of Placental and Retroplacental Blood. E. Stavskaya.—p. 72.

Transfusion of Placental and Retroplacental Blood.—

According to Stavskaya, the distinguishing characteristics of the placental blood are high hemoglobin content, increased morphologic elements, considerable bilirubin content, high sugar content, low cholesterol and alkali reserve. The potassium and calcium blood content amounts to from one and one-half to two and one-half times that of normal, while the albumin content of the plasma is lowered chiefly at the expense of the globulins. It contains estrogen, gonadotropic substance and an epinephrine-like substance. It is also distinguished by its rapid coagulability. The author reports the use of retroplacental blood in the obstetric-gynecologic clinic of the Mother and Child Institute in Kiev. The amount of blood obtainable from a retroplacental hematoma varies from 80 to 300 cc. Morphologic and biochemical studies of the placental blood demonstrate its similarity to that of the mother's blood. The iso-agglutinating properties are sharply defined and the blood grouping corresponds always to that of the mother's blood. The blood in vitro shows little tendency to coagulate and may be kept without preservatives for from ten to twelve days. A 4 or 6 per cent solution of sodium citrate was used as a preservative in a series of cases. This blood remained sterile for fifteen days. Placentas expelled later than four hours after the delivery of the child were rejected. Syphilis, malaria, tuberculosis, infectious disease, puerperal endometritis and marked soiling of the vagina were considered contraindications. Only identical blood groups were used. The author enumerates the following indications for transfusion of placental blood: (1) acute anemia due to hemorrhage, (2) puerperal sepsis, (3) cases in which it is desirable to increase the immunity because of anticipated puerperal complications, (4) gynecologic hemorrhages resulting from metropathies or hormone disturbances and (5) preoperative and postoperative period in weakened and exhausted patients.

Finska Läkaresällskapets Handlingar, Helsingfors

79: 1029-1108 (Dec.) 1936

- Studies on Scarlet Fever: I. Result of Preparatory Dick Tests and Attempts at Immunization Against Scarlet Fever in Finland's Army. J. Wickström.—p. 1029.
Id.: II. Atypical Reaction. J. Wickström.—p. 1051.
Child Delivered by Cesarean Section with Grave Intracranial Birth Injury. T. Brander.—p. 1057.
*Weil's Disease: Case. H. Blomberg.—p. 1062.

Weil's Disease.—Blomberg says that the first certain diagnosis of Weil's disease in Finland was made in a man, aged 44. On the forty-third day of the disease, the agglutination test with Weil's spirochete was positive in a dilution of 1:40,000. The manner of infection is not certain. Twenty days before the onset of the disease the patient worked for a day at mend-

ing a water pipe in a cellar infested with rats and with a wet dirt floor. The possibility is suggested that an unbandaged scratch on his thumb may have become infected.

Ugeskrift for Læger, Copenhagen

99: 1-24 (Jan. 7) 1937

- Climacterium. H. Nielsen.—p. 1.
*So-Called Surgical Scarlet Fever. E. Gottlieb.—p. 8.
How Isolated Is Greenland in Epidemiologic Regard? G. Krogh-Lund.—p. 12.

So-Called Surgical Scarlet Fever.—On the basis of the literature and his personal experiences, Gottlieb states that (1) the so-called surgical cases of scarlet fever seem to be cases of true scarlet fever due to the cause presented by the lesion, burn, operation or delivery, (2) the incubation period has usually been shorter, (3) the disturbance has been rather more marked, (4) angina has relatively often been absent and (5) the way of infection has been extrapharyngeal in most cases. Seven instances are described.

Uppsala Läkareförenings Förhandlingar, Uppsala

42: 209-330 (Dec. 31) 1936

- Influence of Some Narcotics on Autonomic Nervous System. B. Moræus.—p. 209.
*Influence of Dextrose on Tar Cancer in White Mice. K. A. Vannfält.—p. 245.
Effect of Hypertonic Dextrose Solution in Cases of Acute Confusion and Agitation. S. Oldberg.—p. 257.
*Must Electrocardiographic Examination Be Made with Patients in Recumbent or Erect Position? S. Åkesson.—p. 263.
Influence of Some Organic Preparations on Scorbutic Dental Changes in Guinea-Pigs. V. Kalnins.—p. 273.
*Cancer of Prostate: Contribution to Its Clinic. F. Kolmert.—p. 285.
Treatment of Pemphigus Neonatorum. A. Normark.—p. 302.
Influence of Cobra Toxin on Tar Tumors in White Mice. K. A. Vannfält.—p. 315.

Influence of Dextrose on Tar Cancer in White Mice.—Vannfält found that in the mice given a 50 per cent solution of dextrose to drink ad libitum, while the control mice received plain water, metastases of the cancer to the regional lymph nodes was reduced about 50 per cent; the dextrose feeding seemed to lessen the malignity of the primary tumor.

Position of Patients for Electrocardiographic Examination.—Åkesson asserts that in arterial orthostatic anemia, a common disorder, changes in the electrocardiogram similar to those in myocarditis and anoxia of the heart muscle often occur not only when the patient is standing but also when he sits; to avoid differential diagnostic errors, clinical electrocardiography should therefore be carried out with the patient in the recumbent position.

Cancer of Prostate.—Of Kolmert's seventy-five patients with prostatic cancer, largely inoperable, ranging in age from 54 to 83 years, treated at the surgical clinic of the University of Uppsala from 1923 to 1935, eight were living at the end of 1935, and thirty-six of the remaining sixty-seven, or about 54 per cent, had the disease from two to three years or less; the maximum length of life after operation was three and a half years. The author says that cancer should be suspected in cases in which there is burning or pain on urination and short history of disorder without previous troubles of urination. Pain in the back or legs and hematuria are not early symptoms. The metastases are mostly osteoplastic bone metastases in the lower part of the spine, in the pelvis and in the upper part of the femur. Bone metastases also appeared in the cases developed from benign adenomas. Positive diagnosis in the early stages can rarely be made on palpatory results alone, and puncture of the prostate according to Barringer and palpation against the cystoscope according to Young should also be attempted. Twenty-three patients, nearly one third of the material, had metastases on admission; fifteen of these had had urination trouble for only half a year at the most and two had never had any. Twenty-six patients were operated on, half of them with the preoperative diagnosis of hypertrophy; four died in connection with the operation and three from embolism. Metastases or recurrence appeared in 50 per cent of those operated on. Roentgen treatment was extensively used for palliative purposes, partly in the cases in which operation could not be performed and partly in cases in which operation had been performed with recurrence of metastases, and proved superior to other symptomatic treatment.

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THE CLINICAL SIGNIFICANCE AND RATIONALE OF MANAGEMENT OF TESTICULAR SWELLINGS

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AND

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CHICAGO

Scrotal pathologic changes in general and testicular swellings particularly offer an open challenge to the medical profession. The clinical picture and correct management is often very baffling, and, while the subject is covered by rather a wide literature, the authors are cognizant of their own limitations and feel that many important phases of the subject are as yet unclarified.

Testicular swelling is of special interest to urologists and general surgeons because it is an accompaniment of different pathologic conditions affecting the testicle itself, and it may apparently be present in pathologic conditions in structures immediately associated with the testicle. The pathologic lesions of the testicle in which there is testicular swelling are infections, both primary and secondary, traumatism and tumors of all types. The pathologic conditions that may simulate a testicular swelling, and from which this must be differentiated, are certain epididymitides, hydrocele, hematocele, infections and tumors of the cord and testicular tunics. We have seen many cases of thickened, chronically infected hydroceles of advanced years that presented a difficult picture for differential diagnosis owing to the grossly endurated tunics and the structural firmness on palpation.

True testicular swelling mostly associated with tumors is generally observed in adults, though it may be seen in infants and the very aged. Certain of the infectious diseases of childhood may cause infectious orchitis, but this, as well as traumatic orchitis, may occur at any age.

When a patient presents himself complaining of a testicular swelling, a complete and thorough medical, physical and urologic examination is of paramount importance. A cursory scrotal and prostatic analysis is not sufficient, owing to the intimate association of testicular pathologic changes and infectious processes in remote organs. Bordet, Wassermann-Hecht blood tests and careful tuberculosis studies must not be omitted.

Assuming that the testicles are normally descended on palpation, the testicle on the side believed to be sound will usually be found normal in size, density and contour. The spermatic cord on the side on which the testicle is apparently swollen should be grasped between the thumb and the forefinger at the external ring and its constituents palpated. If the constituents approximate easily, separated only by the normal parts of the cord,

namely, the vas, the vessels and fascia, one can conclude that the swelling is not a hernia or any other lesion connected with the abdomen and that, therefore, one is dealing with some lesion of the testicle or its adnexa. Of these, commonest by far, is a hydrocele of the tunica vaginalis or of the spermatic cord. The first is pear shaped and blends with the testicle; the latter is globular and lies above and distinct from the testicle. Both are fluctuant and, if recent, both are translucent on transillumination. A hydrocele may be entirely independent and account for the apparent testicular enlargement, or a hydrocele may be a complication of existing testicular swelling. In any case the presence of a hydrocele must be ascertained and, if there is reason to believe that a hydrocele, if present, masks testicular disease, it must be tapped and emptied so that the testicle itself may be investigated. On the other hand, it is well to remember that a rapid testicular cellular growth may present all the characters of a hydrocele except that it cannot be transilluminated. Many diagnostic errors have been made in which testicular neoplasms have been treated as hydroceles. If a hydrocele is found, the testicle should be palpated both during and after its treatment.

If hydrocele can be eliminated, the next step is to investigate for testicular adnexal diseases, namely, hematocele and epididymitides, which simulate testicular swellings. It is difficult to differentiate a long-standing solid hematocele from a testicular neoplasm.

We have in our records five cases of hematocele of long standing which were only with difficulty differentiated from testicular new growths. The following report will illustrate the confusion often existing between hematocele and testicular sarcoma:

M. S., a man, aged 52, entered the urologic division of the Alexian Brother's Hospital, Chicago, April 10, 1930. The history in brief consisted of a weird narrative of excessive sexual attempts, sexual failures and unnatural sex practices covering a period of forty-eight hours. Within eight hours following the foregoing experiences, we were informed, he was taken with sudden acute agonizing pain in the left testicle and left inguinal region, temperature rises, nausea, vomiting and extreme shock. He was not a local resident and had been elsewhere, and our knowledge of the case came approximately ten days following the appearance of symptoms. Previous diagnosis of hematocele had been given following puncture of the tunic, and none had considered the possibility of testicular tumor. An orchidectomy was performed April 22, and a diagnosis of small round cell sarcoma was obvious following pathologic studies. Extreme radiotherapy was instituted but the patient died five and one-half months later of metastases to the lungs and liver.

This history is instructive, and one is impressed with the seriousness of these cases, the sudden onset and the difficulties encountered in diagnosis.

Tanner¹ says that if on the surface of a scrotal tumor one palpates the tunica vaginalis it is certain that one

1. Tanner, C. O.: Tumors of the Testicle, Surg., Gynec. & Obst. 35: 565 (Nov.) 1922.

is not dealing with a hematocele. It is also impossible in hematocele to feel the epididymis between the fingers, because it is hidden in the cavity of the hematocele. There are, however, certain signs that will help one in recognizing a hematocele: History of a local traumatism is significant; transillumination of the scrotum is not possible; testicular sensation is often lost; it is difficult to distinguish the testicle from the epididymis; the swelling is usually round, solid and hard in consistency and about the size of a duck's egg; in weight, the tumor gives the impression of being heavy; the spermatic cord is often thickened; the layers of the tunica vaginalis cannot be felt by palpating between the fingers. Needle puncture for blood in hematocele is useless as a diagnostic measure, and it may be dangerous.

With the exclusion of hematocele and hydrocele, our quest is reduced to a lesion of the epididymis or of the body of the testicle. An enlargement of the epididymis is usually not of malignant nature but is an inflammation of tuberculous or pyogenic origin. According to

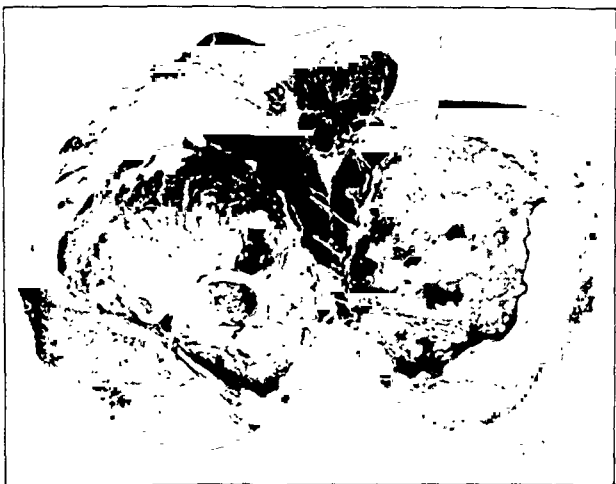


Fig. 1.—Chronic inflammatory hydrocele. The testicle is moderately atrophic with no evidence of spermatogenesis. The capsule is thickened and densely fibrous nearest the testicle itself. Zones of scar tissue covered by purulent exudate are found throughout the testicle.

Mark,² while tuberculosis of the epididymis is known to be relatively common, a critical study of the literature as well as the replies to a questionnaire elicited the fact that primary tuberculosis of the testicle does not exist or is exceedingly rare. If the swelling being investigated is an epididymal tuberculosis, one may reasonably expect nodular areas alternating with caseating areas and nodularities of the vas. If the epididymal swelling is of pyogenic origin, one might expect a tender prostate and seminal vesicles or inflammation about the urethra or bladder neck. If one is unable to find any of these signs, one is justified in concluding that the swelling is due to a lesion of the body of the testicle and that the possible lesions are infections including syphilis and tuberculosis, traumatism or tumor.

TESTICULAR SWELLINGS NOT ASSOCIATED WITH TUMOR

Infections.—Regarding testicular swellings due to infections, Wesson³ says that inflammation of the testis without a coincident prostatitis and seminal vesiculitis

indicates a blood-borne infection. Almost any organism in the blood stream may enter the testis and, if there is a lowered resistance of the gland or an abundance of infective organisms, a foothold may be gained and characteristic lesions produced. However, the rule is that organisms that have invaded the general circulation are rapidly filtered out so that, as far as the testicle is concerned, blood-borne infections are fairly rare. Acute infectious orchitis may occur as the result either of bacterial invasion or of bacterial toxemia; the type example of hematogenous orchitis is seen in mumps, typhoid, pneumonia and smallpox.

Besides the blood stream, testicular infection may occur through the lymph channels and through the natural communications with the vas deferens, epididymis and other associated structures. Localization of bacteria may follow injuries to the cord or operative interventions and spread by contiguity to the testis. It has been alleged that, following a strain, *Bacillus coli* from an infected urine spread to the testicle. In 1927 Caulk⁴ found testicular abscess in 5 per cent of patients with epididymitis; also two cases in which testicular abscess developed after hydrocele operations. Mathé⁵ himself reported two such cases following epididymectomy. He thinks that a great many testicular infections are classed as epididymitides and that cases of gonorrheal orchitis, if on the right side, may be taken for appendicitis. Although suppuration is rare and most of these cases recede without atrophy of the testis, there may be considerable sloughing with ultimate destruction of the testicle. Mathé reports a case of suppurative orchitis due to the colon bacillus in a young man following instrumentation in which an orchidectomy was necessary. A similar case was reported by Grön and Thjotta.⁶ A progressive testicular swelling was one of the important diagnostic points in these cases. Cases of suppurative orchitis following instrumentation are quite common but fail to reach the literature. Our records give seventeen cases of testicular abscess covering a period of twenty years, twelve of which required orchidectomy.

Tuberculosis.—According to Dean,⁷ tuberculosis is a factor in less than 10 per cent of testicular swellings. Mention has already been made concerning tuberculosis in the epididymis. A general tuberculosis first spreads to the genital organs by way of the epididymis, then extends along the vas and finally to the testicle. The family and personal history of the patient should be of value and roentgenograms might show active tuberculous lesions in the lungs. Rectal palpation should disclose any involvement of the prostate and seminal vesicle.

Wesson³ states that the presence of tubercle bacilli in the seminiferous tubules of the otherwise healthy testes in tuberculous subjects is no longer accepted. Before a tuberculous epididymitis or orchitis can be attributed to a contusion, two conditions are necessary: the blood must be filled with tubercle bacilli from an infected focus and at the same time the testis or epididymis must be anatomically so injured that the site provides a suitable culture medium for the settlement of the tubercle bacilli from the blood stream. Trauma as a cause of tuberculous orchitis must be extremely rare. On the other hand, a tumor develop-

4. Caulk, cited by Mathé.⁵

5. Mathé, C. P.: Suppurative Orchitis. *J. Urol.* 34: 324 (Oct.) 1935.

6. Grön, F., and Thjotta, T.: Colon Bacillus Orchitis and Epididymitis. *Acta dermat.-venereol.* 6: 247 (June) 1925.

7. Dean, A. L.: Teratoid Tumors of the Testis. *J. A. M. A.* 105: 1965 (Dec. 14) 1935.

2. Mark, E. G.: Primary Tuberculosis of Body of Testis. *J. Urol.* 5: 17 (Feb.) 1921.
3. Wesson, M. B.: "Traumatic Orchitis". *A. Misnomer.* *J. A. M. A.* 91: 1857 (Dec. 15) 1923.

ing in the testis may extend from the rete testis into the epididymis and simulate tuberculosis or into the vas deferens and suggest tuberculous thickening of the vas in subjects who give a history of tuberculosis.

Syphilis.—In a testicular swelling due to syphilis, testicular sensation is lost; the consistency of the swelling is often hard and solid in early syphilis, the swelling approximates the size of a pullet's egg, it may be ovoid, globular or pear shape, and its weight appears light. The spermatic cord is rarely thickened and the layers of the tunica vaginalis may sometimes be felt by palpation. A positive Wassermann reaction is not diagnostic because it may be given in other conditions; however, other things being equal, a testicular swelling due to syphilis ought to diminish in size after from four to eight weeks of intensive antisyphilitic treatment.

It should be remembered that a malignant tumor of the testicle and syphilis of that organ may coexist; also that the testicle and epididymis may be distorted by masses of tumor tissue which closely simulate gummatous lesions of the testicle.

Traumatism.—Traumatic Orchitis: Wasterlain⁸ cites the view of Chevassu in relation to trauma and swelling of the testicle; namely, that the trauma must be manifest; it must consist of a painful swelling of the scrotum with blood extravasation, and there must be a free interval of several months between the accident and the appearance of the testicular tumor.

Bollag⁹ reported two cases of tumorous swelling of the testicle apparently due to injury. The first patient, aged 48, had worn a truss since childhood for hernia of apparently traumatic origin. A carcinoma simplex (seminoma) resulted. The other patient, a man aged 20, fell from a bicycle, injuring the left testicle; a malignant mixed tumor of the testicle developed shortly after.

Many authors cannot conceive the possibility of an orchitis brought on by strains, although cases have been reported of testicular infection by *B. coli* alleged to be due to strain when the infected bladder was full. It is perhaps possible that injury to an infected hydrocele may spread the infection to the testis.

Wesson³ analyzed seventy cases of reputed traumatic orchitis reported in the literature and states that in no instance was there an atrophy of the injured testicle. In five cases atrophy had followed a previous orchitis. The majority of the cases were nonvenereal epididymitis or tuberculous epididymitis. Only three cases were possibly due to trauma, two hematoceles and one torsion of the spermatic cord. Wesson points to the fact that university and other athletes who are subject to unusual strains do not develop orchitis. He is of the opinion that seminal vesiculitis and not contusions or strains is responsible for the epididymitis commonly diagnosed as "traumatic orchitis."

Simple contusions of the testicle rupture small vessels with resulting hemorrhagic points. The pressure of the tunica vaginalis controls the bleeding. There may be edema and the testicle may become enlarged and hard. Fibrosis may follow at points of injury. If there is extensive cicatricial contracture there may be eventual atrophy of the testicle.

We feel that in true trauma of the testis either there are constitutional symptoms, such as nausea, vomiting, great weakness, fainting and evidence of extreme shock, occasionally resulting in death, or there is local evidence of injury such as extravasation of blood with resultant

pain, loss of function, with swelling beneath the deep fascia and discoloration, which appears promptly because of injury to the superficial structures.

We have observed that in many cases of testicular tumors the patient gives a history of trauma suggesting that the tumor was the result of traumatism, but usually the injury has only called attention to a testicular swelling which had been existing for a period of time. In spite of the number of cases in which there has been a history of trauma, it is, however, doubtful whether trauma gives rise to any neoplastic process. In two of the thirteen cases of testicular tumor reported by MacKenzie and Ratner¹⁰ the patients gave a history of trauma less than a year previous to the appearance of scrotal swelling.

TESTICULAR SWELLINGS ASSOCIATED WITH TUMORS

On account of their clinical importance and comparatively far greater frequency, testicular swellings in association with some type of testicular tumor are of much more practical interest than testicular swellings associated with other conditions. If, following the localization of such a swelling of the testicular tissue proper, infection and trauma can be ruled out, there is no other alternative but a diagnosis of testicular tumor. Formerly all such tumors were considered to be sarcomas and highly malignant; later they were classified into four or five groups, but the accepted view today is that a great majority of tumors of the testicle are of embryonal origin.

All authors agree that in the etiology of such tumors neither heredity, occupation, race nor environment plays any part. More than 95 per cent of testicular tumors originate from aberrant sex cells. New growths may arise from any type of such cell present in the testicle which contains, potentially, the three germinal layers (epiblast, mesoblast and hypoblast). Pathologists tell us that, therefore, any type of tumor—connective tissue, epithelial or mixed type—is possible. There are homogenous and heterogenous tumors and, in each, there may be benign and malignant types. They may be found in either normally descended or ectopic testicles.

Testicular tumors are not rare. Desjardins and his associates¹¹ report on 155 such tumors observed in the Mayo Clinic between 1920 and 1929 and they as well as others have found that, although such tumors may



Fig. 2.—Chronic infected hydrocele with vas deferentitis. This clearly demonstrates the atrophied testicle including the site of chronic inflammatory hydrocele. The cord is greatly thickened and very nodular.

8. Wasterlain: *Tumeurs du testicule*, J. belge d'urolog. 3: 149, 1932.

9. Bollag, L.: *Schweiz. med. Wchnschr.* 62: 419 (April 30) 1932.

10. MacKenzie, D. W., and Ratner, M.: *Tumors of the Testis*, Surg., Gynec. & Obst. 52: 336 (Feb.) 1931.

11. Desjardins, A. U., Counsellor, V. S., and Gianturco, C.: *Tumors of the Testis*, Am. J. Surg. 27: 71 (Jan.) 1935.

be observed at any age, they are mostly a development of the period of active sex life. That many cases of testicular tumors are not correctly diagnosed is obvious.

CLASSIFICATION AND TYPES OF TESTICULAR TUMORS

There is some variance of opinion concerning the classification and types of testicular tumors. As stated already, the vast majority of these were considered as sarcomas. In 1906 Chevassu¹² published a classification, which was generally accepted until recently. This comprised six classes, of which three were specific; namely, (a) the seminal epithelioma or seminoma developing in the interior of the testicle by proliferation of specific cells lining the seminal tubules; it is a solid, fleshy, homogeneous tumor metastasizing probably through the lymphatics; (b) tumor of the interstitial cells, a specific tumor occurring rarely and mostly in ectopic testicles; (c) the specific testicular adenoma,

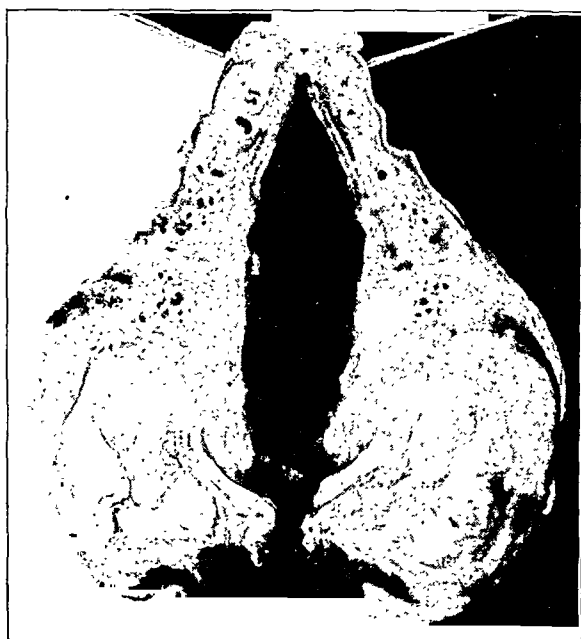


Fig. 3.—Central abscess of the testicle. The central abscess is here clearly indicated. The central necrotic mass can be seen, also the point at which it broke through to the outer coverings of the testicle.

also more frequently seen in ectopic testis. Among the nonspecific testicular tumors Chevassu included (d) the fibroma, arising from the fibrous tissue of the testicles and of which only a limited number of cases have been reported; (e) true primary sarcoma, usually small round cell sarcoma. Chevassu considered this type rare, having seen it only in one of 126 cases of testicular tumor. Most writers now agree that true primary sarcoma of the testis is rare; (f) finally, Chevassu described the mixed tumors, the embryomas, containing both epithelial and connective tissue.

Ewing¹³ advanced the view that all malignant tumors of the testicle were of embryonic origin and were therefore teratomas. He considered that Chevassu's seminoma was only a particular type of teratoma and that it was not developed from adult spermatoblasts but, like the mixed tumors, arose from aberrant sex cells that contained all three germinal elements. While many writers still retain the term seminoma, opinion is tend-

ing toward a general acceptance of Ewing's theory that all testicular malignant tumors are teratomas.

Morton¹⁴ made a pathologic study of tissue from 102 cases of testicular tumor seen at the Mayo Clinic up to the end of 1927. The most common type (sixty-nine out of 102) was carcinoma simplex or malignant seminoma; there were twenty-eight embryonal teratomas (mixed tumors), three fibrosarcomas and two dermoids.

Most writers agree that malignant testicular tumors are mostly embryonic carcinoma or embryonic teratomas. Herger and Thibaudau¹⁵ made a histologic study of fifty-six out of sixty-three cases of testicular tumor observed during the past twenty years in the New York State Institution for the Study of Malignant Disease and found that fifty-five were teratomas and one was a fibrosarcoma.

Chorio-epithelioma, similar to that found in the female genitalia, is occasionally found in testicular tumors. Fortner and Owen¹⁶ recently reported two cases in adults; Entwisle and Hepp¹⁷ in 1935 reported a case in an adult and stated that 131 cases of chorio-epithelioma in males had been reported up to 1932. This tumor was first described by Schlagenhafer in 1902. It is stated generally that tumors of the ovary are more benign than similar tumors in the testicle and, when malignant, are less malignant.

Only a small percentage of testicular tumors are benign. Tanner¹ states that among the benign tumors there are dermoids, adenomas of the seminal tubules, interstitial cell tumors, fibromas, lipomas, myomas and chondromas. Examples of each have been reported in the literature. Stewart, Bell and Roelke¹⁸ recently reported a case of interstitial cell testicular tumor in a boy aged 5 years.

Among the rare types, Jenkins and Deming¹⁹ describe simple cysts of the testicle which they differentiate from cystic neoplasm and encysted hydrocele.

TUMORS IN UNDESCENDED TESTICLES

In 1921 Cunningham²⁰ found new growths over ten times as frequent in normally descended as in undescended testicles. But many urologic surgeons are of the opinion that an undescended testicle is more likely to develop a primary tumor than a normal one. About one in every 253 male hospital patients show undescended testicles. Hinman and Benteen²¹ in 1936 stated that 160 cases of testicular tumor in cryptorchids had been reported. The incidence of tumor arising in cryptorchidism is reported as varying from 11 to 15 per cent by different authors. Dean found that malignant tumor occurred in 14.28 per cent of undescended testicles. Higgins²² found that malignant disease occurred three times in 251 cases of undescended testicles; three of his sixty-six malignant tumors were in undescended testicles, two in the inguinal canal and one in the abdomen.

14. Morton, S. A.: The Pathology of Tumors of the Testicle. Proc. Staff Meet., Mayo Clin. 4: 98 (March 27) 1929.

15. Herger, C. C., and Thibaudau, A. A.: Teratoma of Testis. Am. J. Cancer 22: 525 (Nov.) 1934.

16. Fortner, H. C., and Owen, S. E.: Chorionepithelioma in Male. Am. J. Cancer 25: 89 (Sept.) 1935.

17. Entwisle, R. M., and Hepp, J. A.: Testicular Chorionepithelioma. J. A. M. A. 104: 395 (Feb. 2) 1935.

18. Stewart, C. A.; Bell, E. T., and Roelke, A. B.: Interstitial-Cell Tumor of Testis with Hypergenitalism in Child of Five Years. Am. J. Cancer 26: 144 (Jan.) 1936.

19. Jenkins, R. H., and Deming, C. L.: Cysts of the Testicle. New England J. Med. 213: 57 (July 11) 1935.

20. Cunningham, J. H.: New Growths Developing in Undescended Testicle. J. Urol. 5: 471 (May) 1921.

21. Hinman, Frank, and Benteen, F. H.: The Relationship of Cryptorchidism to Tumor of the Testis. J. Urol. 35: 378 (March) 1936.

22. Higgins, C. C.: Diagnosis and Treatment of Testicular Tumors. Proc. Internat. M. Assembl. Interstate Postgrad. M. A. North America. 1931 (1932), pp. 261-265.

12. Chevassu, M.: Tumeurs du testicule, these de Paris, 1906.

13. Ewing, Teratoma Testis and Its Derivatives. Surg., Gynec. & Obst. 11: 230, 1911.

Hinman's²¹ personal study, based on the observation of 40,000 male hospital patients in the California Hospital, showed that testicular tumor occurred twenty times more frequently in undescended than in those normally descended. Dean found that teratoma occurs about 237 times as frequently as in normally descended testicles.

An abdominal tumor of testicular origin obviously presents many formidable problems of differential diagnosis. It is a rapidly growing process, not infrequently inoperable, and the end results are generally unsatisfactory.

INCIDENCE OF TESTICULAR TUMOR

Hinman and Benteen,²¹ based on the study of nearly 40,000 male hospital admissions, found the incidence of testicular tumors as about one in 983 patients. Tanner¹ and Carlton²³ estimate that a testicular malignant condition is seen in about one in 2,000 males seen in the average outpatient department. According to Dean,²⁴ based on the admissions to the Memorial Hospital in New York, between 1917 and 1926 testicular malignant growths comprised 3.39 per cent of all tumors of the genito-urinary system, 2.09 per cent of all malignant tumors in the male. The average age at which the tumor becomes manifest is 31.7 years but it may be seen at any age. In MacKenzie and Ratner's¹⁰ series of cases the ages varied from 21 to 64 years. In Higgins's²² sixty-six cases the average age was 34.

Regarding laterality, most writers agree that the right testicle is more frequently affected than the left and, according to Dean,²⁴ the right testicle is the site of 52.2 per cent. Bilaterality is very rare; Higgins noted it in one out of sixty-six cases.

According to Tanner,¹ 96 per cent of new growths of the testicle are malignant.

Testicular tumors are rarely observed in children. Higgins states that the largest series collected in children contained only forty-two cases.

SYMPTOMS OF TESTICULAR TUMOR

Patients with swellings definitely located in the testis should be thoroughly examined and all diagnostic tests, especially the hormone test, which will presently be referred to, applied.

There are no pathognomonic symptoms of malignant testicular tumor, and experience has taught us that the symptoms of testicular tumor in general are most uncertain. Some patients complain of a mass in the scrotum or groin accompanied or not by dragging pain; others may mention occasional shortness of breath, cough or swelling of the legs. As a general rule, in the early stages of testicular swelling there is no pain, according to our observation and those of others, the initial symptom in 75 per cent of cases of teratoma being a painless swelling of the testicle. After pain is felt, metastases are usually rapid. In Higgins's series of sixty-six patients, 18.1 per cent complained of testicular pain and thirty-one per cent complained of more or less lumbar pain. Pain may be elicited on palpation of the testicle. As a later manifestation of a malignant growth, 27 per cent noted loss of weight and 26.4 per cent loss of appetite. In the majority of cases there is a progressive enlargement of the testicle with freedom from pain until metastases can be demonstrated clinically. We have commonly noted that in the early

stages of a malignant condition the testicle is firm and smooth with no change in contour. Nodulations may occur later. The epididymis is usually unchanged and free from manifest pathologic changes, the skin moves freely over the testicle; the scrotum cannot be transilluminated.

Clinically the symptoms may be divided into three periods: the period of onset when the testicle is still in the scrotum, the period of evolution when the gland reaches considerable proportions, and the final period, characterized by grave symptomatology with infection of all lymphatic nodes of the lumbo-aortic region and cord.

We have been impressed with the rapid advancement of these abdominal testicular tumors and the delayed appearance of these patients in seeking medical or surgical aid. Time is an ever important factor and in the two cases seen by us the growths had advanced to the size of the fetal head with fatal terminations six months and eighteen months following an attempt at surgical assistance.



Fig. 4.—Seminoma. Practically all the mass is tumor tissue composed of round, oval or polygonal cells with large vesicular nuclei. The cells are crowded together in irregular masses separated by thin bands of connective tissue stroma. The tumor has involved the epididymis. Areas of necrosis are large and numerous.

DIAGNOSIS OF TESTICULAR TUMORS

As already stated, there are no clinical pathognomonic symptoms of testicular tumors. The clinical diagnosis is made chiefly by exclusion. As Cieza Rodríguez and Mainetti²⁵ show, a testicular tumor may be masked by a greatly thickened tunica vaginalis or by epididymitis or by a tuberculous lesion of the testicle. We also note some presumptive physical signs, which are significant; testicular sensation is sometimes lost, in malignant disease the consistency is sometimes hard and solid and, as regards weight, the testis seems heavy. The tumor may be ovoid, globular or pear shaped, and the size is usually that of a fowl's egg. The spermatic cord is usually thickened in malignant disease; layers of the tunica vaginalis can be compressed with the palpating fingers easily. If there are metastases, nodules can be felt in the cord and mass along the lymphatics.

The introduction of biologic tests in recent years has greatly simplified the diagnosis of malignant tumor of the testicle and its differentiation from benign tumors. This method, which was developed by Ferguson,²⁶ cut-

23. Carlton, C. H.: The Early Diagnosis of Malignant Disease of the Testicle. *Practitioner* 130: 225 (Feb.) 1933.

24. Dean, A. L.: Undescended Testicles. *Am. J. Surg.* 8: 988 (May) 1930.

25. Cieza Rodríguez, M., and Mainetti, J. M.: Tipos raros de tumores del testículo. *Semana méd.* 1: 277 (Jan. 25) 1934.

26. Ferguson, R. S.: Quantitative Behavior of Prolan A in Teratomatous Testis. *Am. J. Cancer* 18: 269 (June) 1933.

ler and Owen,²⁷ Zondek²⁸ and others, gives a means of determining the presence of metastases before they make their clinical appearance, as well as of detecting any hidden extensive metastases that may have resisted radiation treatment. There is thus a biologic as well as a clinical method of determining the presence of metastases. MacKenzie, Ratner and others point out that in testicular malignant neoplasm metastases occur very early and are often present in cases in which clinically they cannot be determined. They spread first by the lymphatic route to the lumbar glands and to the glands along the spermatic vessels and later to the retroperitoneal glands. By the blood route metastases may travel quickly to the lungs, liver and other viscera.

The biologic test consists in the observed fact that the urine of patients with embryonal tumors contains a notable amount of gonadotropic hormone. Cutler and Owen²⁷ made quantitative determinations of the follicle



Fig. 5.—Malignant teratoid in undescended testicle. This specimen is the size of a fetal head, as stated in the text. It is characterized by the typical teratoid tumor mass with a multitude of small cysts scattered throughout.

stimulating factor in the urines of sixty-six patients with teratoma of the testis; also in thirteen normal men and patients with benign testicular tumors. In all the latter the amount of the hormone was less than 50 mouse units; in the first group it varied from 50 to 16,000 mouse units per liter of urine.

The test with the follicle stimulating factor is positive in 60 per cent of testicular tumors independent of the nature of the tumor. The value of reaction in male cases is increased by the fact that it is negative in many other disorders of the male genitalia, such as, for instance, carcinoma of the prostate.

It should be noted, however, that a positive hormone test is not pathognomonic of testicular embryonic tumor; it may be given in the presence of an embryonal tumor elsewhere. Furthermore, pure specific testicular tumors may give a negative test. A pure seminoma may not cause excretion of increased follicle stimulating factor in the urine.

The hormone excretion test is valuable in determining the presence or regression of metastases. Patients in whom at operation no metastases have been found usually fail to excrete hormone within two weeks after orchidectomy. If the hormone persists there are usually hidden metastases. Also a local recurrence of tumor or metastases is generally preceded by a rise in the quantitative excretion of the hormone in the urine. This is a valuable method of checking the necessity or not for more radical measures in the surgical treatment of malignant testicular tumors. The hormone test appears to give a fairly accurate method, in association with clinical changes, of estimating the presence or absence of a testicular malignant condition. It makes diagnosis possible before the malignant growth has extended beyond the testis and before extensive metastases have rendered the case inoperable or helpless.

TREATMENT OF TESTICULAR TUMORS

There are now three recognized methods of treating testicular tumors: (a) simple orchidectomy, (b) irradiation with or without castration, and (c) the radical operation, in which the testicle and its primary and perhaps secondary lymph zones are removed.

In considering the important question of surgical intervention in testicular malignant growths we feel that our personal reaction and views have experienced a severe upheaval since the advent of gonadotropic hormone estimations. Some authors are of the opinion that surgery must be limited to those cases in which there is no clinical or biologic evidence of a malignant condition before or during operation. In our series of cases prior to 1932, surgery had been advised in almost all instances, to be followed by thorough and intelligent irradiation both locally and generally. Radiologic and biologic advancements have materially broadened our views in this matter; now, with the advantage of a more concrete and exacting classification of tumors, degrees of malignancy and radiosensitivity, surgery is advised only in the cases that show no clinical evidence of metastases and low hormone titers. The foregoing is a brief citation and is modified in keeping with the severity of the case and the entire clinical picture presented. Intensive radiotherapy and early orchidectomy is our rule.

ORCHIDECTOMY

Orchidectomy in its simplest form and with the exclusion of all wide spreading glandular extirpation is advocated. In the light of modern radiologic therapy, extensive surgical procedures are not only futile but practically unnecessary. It is important to remember that a wise procedure in an orchidectomy is to sever the cord before the tumor is handled in any way. This will help to prevent the possibility of having any malignant cells thrown into the lymph or blood stream. It is further generally conceded that great care should be taken in every operation on the testicles to prevent operative inoculations; neoplasms of the testicle are very fragile and should be traumatized as little as possible.

Higgins²² believes that radiation should be administered to the testicle and inguinal glands prior to orchidectomy, the operation being performed from two to three weeks later. There should be systematic irradiation of the same and the lumbar glands following orchidectomy. Preliminary irradiation has been carried out by us and no appreciable change in end results was noted.

27. Cutler, Max, and Owen, S. E.: Clinical Value of Prolan A: Determinations in Teratoma Testis. *Am. J. Cancer* 24: 318 (June) 1935.
28. Zondek, Bernhard: Maligne Hodentumoren. *Klin. Wchnschr.* 11: 274 (Feb. 13) 1932.

RADIATION

Experience with radiation shows a great difference in the degree of sensitivity of various types of testicular tumors to this mode of therapy. Desjardins²⁹ says that the cells of the testis most sensitive to radiation are those which form the basal layer of the tubules, which are known as spermatogonia. The spermatocytes, which are more mature, are not nearly as sensitive. Pure seminomas and homogeneous embryonal carcinoma are radiosensitive and, if hormone tests disclose a tumor of such type without metastases, irradiation without surgery may be tried.

Only with considerable hesitancy do we rely solely on radiation for the treatment of a primary testicular tumor. Its growth may be temporarily restrained, but it may be responsible later for the dissemination of metastases; there is also the danger to the opposite testicle from intensive irradiation to the affected one.

Desjardins and his associates¹¹ report on the result in 155 cases of testicular tumor treated at the Mayo Clinic between 1920 to 1929 by orchidectomy both with and without irradiation. Seven patients, all seen in the first years of the disease, were treated by orchidectomy alone; twenty-three were treated by roentgen rays alone; 125 were treated by the combined method. Of the second group 56.6 per cent were seen during the first year, and of the third group 76.1 per cent were seen during the first year. Of the first group three, of the second group seven, and of the third group sixty patients were alive and well at the time of reporting (1935). The authors conclude that patients receiving combined treatment derive more benefit than patients treated by surgical methods only or by radiotherapy only. The results of radiotherapy depend largely on the stage of the malignant process, particularly if metastases have not spread beyond the para-aortic lymph nodes in the lumbar region.

Hinman,³⁰ analyzing 258 collected cases in which orchidectomy with or without irradiation was the mode of treatment, found that 118 patients were dead and 124 were living, but only seventeen for five years or more, a cure of only 6 per cent. In inoperable cases high voltage roentgen treatment of abdominal metastases showed only a few successes.

RADICAL OPERATION

The first complete radical operation for malignant testicular tumor was carried out by Roberts³¹ in 1902. Following operation he removed the retroperitoneal lymph nodes along the abdominal portion of the aorta. At the present time Hinman³⁰ is the strongest advocate of this method of treatment. Keyes,³² reporting in 1926, was not enthusiastic about the radical operation and believed that its execution was possible in only a little over 50 per cent of cases. In 1933 Hinman³⁰ reported that more than 100 radical resections had been carried out by himself and other American surgeons with only one operative fatality, so that the operation was entirely feasible. On retroperitoneal exposure twenty of these 100 cases were found to be inoperable. The operation was completely carried out in the remaining eighty cases. In the eighty, no metastases were found in thirty-six; eleven of these patients were alive five years or longer; of the entire eighty patients on

whom a complete radical operation was done, 35 per cent were dead from metastases and 63.75 per cent were alive, seventeen patients (20.1 per cent) for five years or more.

In a later report Hinman³³ pointed out that anything short of complete removal of the primary and immediate secondary lymph nodes was not a true radical operation. This was possible only on the right side owing to the superior mesenteric artery on the left side. However it might be possible to remove the left lymphatic areas if approach to them was made from the right side.

Taking into account intensive irradiation and the present status of hormone estimations, we note that in an analysis of some forty-five cases of testicular neoplasms thirty presented no clinical evidence of metastases when first examined. In the remaining fifteen cases secondary involvement was definitely established on presentation.

In the thirty patients with no apparent metastases, twelve received radical surgery and all presented micro-pathologic sections of glandular metastases; however, eight of the patients in this bracket carried on from two to seven years after operation. The remaining eighteen patients were given simple orchidectomy, ten with irradiation and eight without, with an average of longevity of from two to five years respectively.

Fifteen patients with clinical evidence of metastases were treated by orchidectomy and high voltage x-ray exposures; all gave a fair or poor prognosis and those followed up all had succumbed in from six months to three years following.

We are all in accord that cases of teratoma without a suspicion of metastases, being radioresistant, offer the best types for radical surgery. It should be remembered that patients without clinical evidence of metastases may after orchidectomy show by hormone tests that metastases are present and in such cases radical procedures may be justifiable, if one is inclined to be radical.

The prognosis, as the result of the present day conception of the rationale of tumor management, is vastly more encouraging, yet the end results in our experience, although more delayed, are ultimately fatal.

CASTRATION PLUS SERUM TREATMENT

Coley's³⁴ serum treatment of testicular tumor should be mentioned. In 1923 he reported seventy-eight cases presenting metastases treated by orchidectomy followed by injection of serum (toxins). Of the seventy-eight patients, twenty-two survived four years or more.

PROGNOSIS OF TREATED TESTICULAR TUMORS

The prognosis in the case of a testicular tumor, treated surgically or by surgery combined with irradiation, has greatly improved within the past ten years. Keyes,³² writing in 1926, says: "I have seen approximately thirty patients afflicted with this disease (malignant testicular tumor) and with one exception, under the surgical treatment exclusively employed up to about ten years ago, I have not known a case to survive three years from the time the diagnosis was made and the testicle removed." However, Keyes cites Handfield-Jones, who reported twenty-two cases of simple orchidectomy without abdominal operation with eleven survivals for a considerable time, four of these for four

29. Desjardins, A. U., in discussion of Morton.¹⁴

30. Hinman, Frank: Tumors of the Testis, Surg., Gynec. & Obst. 56: 450 (Feb.) 1933.

31. Roberts, J. B.: Excision of Lumbar Lymphatic Nodes and Spermatocytic Veins in Malignant Disease of the Testicle, Ann. Surg. 37: 539, 1902.

32. Keyes, E. L.: Malignant Tumors of the Testicle, Am. J. Roentgenol. 15: 44 (Jan.) 1926.

33. Hinman, Frank: The Prognosis and Treatment of Tumors of the Testis, J. Urol. 34: 72 (July) 1935.

34. Coley, W. B.: End Results in Malignant Disease of the Testicle, Ann. Surg. 75: 370 (Sept.) 1923.

years or more. In Tanner's¹ 600 cases collected from the literature, nearly all treated by orchidectomy alone, only twenty-five patients (5.5 per cent of those followed) were living and well four years or more after operation, representing a mortality of 36 per cent. The operative mortality at the present time is practically nil.

Regarding radiation treatment alone, Dean⁷ states that in a series of 170 patients with teratoma, 72 per cent of whom had metastases, the five year end results after irradiation show 29 per cent of the men living and well and free from disease.

Regarding the results following orchidectomy with irradiation of the lymph-bearing area, Herger and Thi-baudau¹⁵ state that 33 per cent of their twenty-one patients survived for three years or longer. MacKenzie and Ratner¹⁰ give the operative mortality of the radical operation as varying from 10 to 20 per cent. Hinman²³ gives it as approximately 11 per cent.

The date of onset, the hormone estimation, radio-sensitivity and tumor types must be carefully studied in all cases of testicular swellings.

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BLOOD GROUPING AND COMPATIBILITY

A SIMPLE TECHNIC FOR DETERMINATION FROM SMALL AMOUNTS OF DEFIBRINATED WHOLE BLOOD

PAUL HOXWORTH, M.D.

AND

AZEL AMES, M.D.

CINCINNATI

In municipal hospitals heavily burdened with traumatic surgery, the method employed for grouping and matching blood prior to transfusion must be chosen for speed as well as for accuracy. While meeting modern requirements for safety, the technic will of necessity be designed primarily for efficiency. At the Cincinnati General Hospital, where more than 500 transfusions are given each year in the surgical service alone, there has been a gradual evolution toward a more efficient routine for the selection of donors from groups of unknown volunteers. The procedure that we now consider ideally suited to our needs is a combination of the Vincent¹ open macroscopic method for grouping and the Coca² compatibility test for direct matching. Each method has been slightly modified, so that both determinations may be made with a single small sample of defibrinated whole blood. The Vincent and the Coca methods were reported almost simultaneously in 1918. We know they were used in combination for many years by Coca and Grove at the New York Hospital prior to 1932, and perhaps others have employed both methods; but the advantages of their use in combination have never been emphasized, and the Coca compatibility test is known to very few.

Prior to 1918 the best methods for grouping and direct matching were those advocated by Minot.³ He

pointed out the need for simple rapid methods, did away with the washing of cell suspensions, and encouraged elimination of the old hemolysis tests established by Moss⁴ and Epstein and Ottenberg⁵ and later modified by Weil⁶ and by Rous and Turner.⁷ For blood grouping he advised the use of stock test serums and a simple citrated blood suspension (one drop of blood in 1 cc. of a 1.5 per cent sodium citrate solution in saline solution) mixed in cover slip preparations. For direct matching he advocated Weil's⁶ 1:9 and 9:1 mixtures of citrated whole blood set up in tubes but read microscopically in hanging drop cover slip preparations. The contingencies of war led to the development of a rapid macroscopic agglutination⁸ test for blood groups by Vincent, who found that, by citrating stock test serums, blood could be added directly from finger puncture to drops of serum on a slide.

In the hands of experienced technicians employing standardized high titered test serums, the Vincent method is now generally considered the safest as well as the simplest procedure for determining blood grouping. If the selection of donors could be rigidly restricted to a choice of individuals from the same blood group as the patient, no further test of compatibility would be required except as a check for possible errors in grouping and the exceptional occurrence of atypical agglutination. In emergencies, however, just as one must sometimes employ a donor without knowledge of his Wassermann reaction, relying on an examination for primary and secondary lesions,⁹ so must one also at times make use of a "universal" donor or, more rarely, in the case of a "universal" recipient, a donor from group A or B. Under these circumstances a compatibility test is imperative, for it is well known that group O¹⁰ donors frequently possess agglutinins of a titer dangerous for A or B recipients,¹¹ even in the proportions of a small transfusion. Furthermore, compatibility must be determined quantitatively as well as qualitatively by some method that will reproduce as faithfully as possible in vitro the conditions (whole blood) and proportions of the proposed transfusion in vivo. Therefore it is quite essential in hospitals of this type that the method employed for direct matching be designed not only for checking grouping errors and atypical agglutination but also for actual slide titration

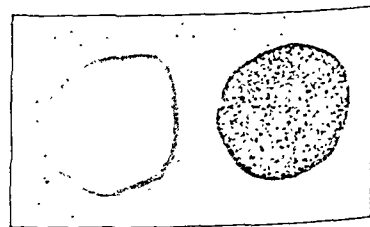


Fig. 1.—Group A agglutination fifteen seconds after blood was mixed with serums.

of the donor's agglutinins against a proper proportion of the patient's blood. Coca's method, simplifying the older methods of Weil, and of Rous and Turner, and

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1. Vincent, Beth: A Rapid Macroscopic Agglutination for Blood Groups and Its Value in Testing Donors for Transfusion, *J. A. M. A.* 70:1219 (April 27) 1918.

2. Coca, A. F.: The Examination of the Blood Preliminary to the Operation of Blood Transfusion, *J. Immunol.* 3:93 (March) 1918.

3. Minot, G. R.: Methods for Testing Donors for Transfusion of Blood, and Consideration of Factors Influencing Agglutination and Hemolysis, *Boston M. & S. J.* 174:667 (May 11) 1916.

4. Moss, W. L.: Studies on Iso-Agglutinins and Isohemolysins, *Bull. Johns Hopkins Hosp.* 21:63, 1910.

5. Epstein, A. A., and Ottenberg, Reuben: A Method for Hemolysis and Agglutination Tests, *Arch. Int. Med.* 3:286 (May) 1909.

6. Weil, Richard: Sodium Citrate in the Transfusion of Blood, *J. A. M. A.* 64:425 (Jan. 30) 1915.

7. Rous, Peyton, and Turner, J. R.: A Rapid Simple Method of Testing Donors for Transfusion, *J. A. M. A.* 64:1980 (June 12) 1915.

8. Throughout this paper the term "agglutination" refers to normal human iso-agglutination.

9. Morgan, H. J.: Factors Conditioning the Transmission of Syphilis by Blood Transfusion, *Am. J. M. Sc.* 189:808 (June) 1935.

10. The international classification of human blood groups O, A, B, AB is employed throughout this paper.

11. Grove, E. F.: On the Use of Low-Titered Universal Donors for Patients of Other Blood Groups and Similar Substitutions, *J. Lab. & Clin. Med.* 16:670 (April) 1931.

modified by Levine and Mabee¹² and Landsteiner,¹³ admirably fulfils these requirements.

TECHNIC

Approximately ten drops of blood is obtained by finger puncture and defibrinated in a Wassermann tube by whipping with a wooden applicator for five minutes. This quantity is sufficient for grouping and several compatibility tests. Separation of cells and serum is not desirable.

Grouping.—Large drops of high titered test serums anti-B and anti-A are placed on the left and right ends respectively of a glass slide. Defibrinated blood is added to each drop of serum and thoroughly mixed with the aid of a platinum loop. The slide is tilted back and forth over a white background in bright light and observed macroscopically for clumping. Agglutination is striking (fig. 1) and, if serum of grade I (Coca¹⁴) is used, will be complete in less than one minute. When no agglutination is seen after one minute on either side, the slide is placed under a petri dish with wet blotting paper and observed again fifteen minutes later as a precaution against weak agglutinogens.

Matching.—A 1:1 or 50 per cent suspension of the recipient's defibrinated blood is prepared in the stem of a white blood cell counting pipet by drawing blood up to the 0.5 mark and then filling to the 1.0 mark

Comparison of Agglutinin Titer of Serums Used at Cincinnati General Hospital with Grade I (Coca) Serum

Serum	Serum Dilution	Cell Dilution	Macroscopic Agglutination Time
Grade I (Coca).....	1-4	1-4	11 seconds
Serum at Cincinnati	Anti-A 1-10	1-4	5 seconds
General Hospital	Anti-B 1-10	1-4	5 seconds

with physiologic solution of sodium chloride. The blood is diluted 1:1 with saline solution because agglutination cannot be differentiated microscopically in any greater concentration and because dilution inhibits undesirable rouleau formation. The diluted blood is deposited on the left end of a glass slide and mixed by means of a jet of air blown from the pipet. An identically prepared suspension of donor's defibrinated blood is placed on the right end of the same slide, and one fifth of this drop (two divisions of the pipet) is transferred to the drop of diluted recipient's blood. This 1:5 ratio is based on the assumption that 500 cc. is to be transfused to a patient whose blood volume is depleted 50 per cent, or approximately to 2,500 cc. It provides a wide margin of safety in transfusions from a "universal" donor, as dangerously potent agglutinins will not be completely absorbed in this concentration without manifest agglutination.¹² The 1:5 mixture of donor's and recipient's blood is then stirred with a platinum loop or glass rod, and the slide is placed under an inverted petri dish with a piece of wet blotting paper. After fifteen minutes the mixture is again agitated and observed microscopically under low power for agglutination.

Care must be taken not to confuse rouleau formation with agglutination. The former can always be broken up by stirring, while the latter will be intensified. Agglutination will be striking if a grouping error has

been made (fig. 2), but a little practice is required to estimate the degree of agglutination of the recipient's cells by a "universal" donor's agglutinins, in the presence of nonagglutinable cells forming rouleaux. Unless the agglutination is so definite and conspicuous that there is no question of confusion with rouleau formation, the blood may be pronounced compatible.

DATA

The importance of employing reliable standardized high titered test serums cannot be overemphasized. Open macroscopic grouping methods require an abundant supply of such serums. Before undertaking experiments with the Vincent method, we prepared large quantities of anti-B and anti-A serum from the blood of two volunteers possessing unusually high

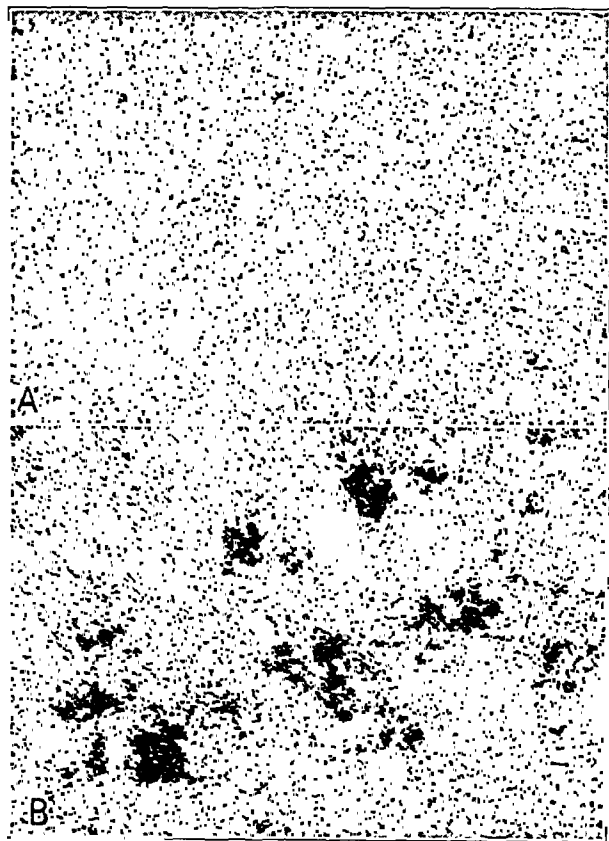


Fig. 2.—Low power photomicrographs of compatibility tests showing (A) compatibility and (B) incompatibility (2:10 mixtures of 50 per cent whole blood suspensions at the end of fifteen minutes).

agglutination power as determined by slide titration of agglutinins.¹⁴ These serums excelled the requirements of Coca's grade I for commercial test serums,¹⁵ as shown in the accompanying table, without any artificial concentration such as the alternate freezing and thawing proposed by Terry.¹⁵

For many years we had used home-made or commercial serums of indifferent quality, relying on cross-matching for safety, and employed a modification of Minot's method for grouping. Blood was obtained by venipuncture and three drops was mixed with a test tube full of saline solution to make an uncitrated cell suspension. The remainder was allowed to clot and was then centrifugated to separate the serum. Agglutination was determined microscopically in petrolatum-

12. Levine, P. and Mabee, J.: A Dangerous "Universal" Donor Detected by the Direct Matching of Bloods, *J. Immunol.* 8: 425 (Nov.) 1923.

13. Landsteiner, K.: The Human Blood Groups, in Jordan, E. O., and Falk, I. S.: *Newer Knowledge of Bacteriology and Immunology*, Chicago, University of Chicago Press, 1928, p. 906.

14. Coca, A. F.: A Slide Method of Titrating Blood Grouping Sera, *J. Lab. & Clin. Med.* 16: 405 (Jan.) 1931.

15. Terry, M. C.: High-Titer Blood Grouping Serum, *Proc. Soc. Exper. Biol. & Med.* 33: 14 (Oct.) 1935.

rimmed cover slip preparations of cell suspension mixed with test serum and allowed to stand for from twenty to thirty minutes. For direct matching we had always used Moss's method¹⁶ simplified by elimination of citrating and washing of the cells. Reciprocal hanging drop preparations of equal parts of serum and saline cell suspension were observed microscopically after mechanical shaking for from thirty to sixty minutes.

In order to prove the greater efficiency and reliability claimed for the combined Vincent and Coca procedures, all groupings and matchings for transfusions given in the surgical service during a period of two months were determined both by the older methods and by our new Vincent-Coca technic. These examinations were made in parallel series on more than 200 consecutive specimens of blood. In each instance the new technic was tried first and then checked by the older methods. Not only was each pair of readings in agreement but in every instance the criteria of agglutination were more promptly and clearly defined with the Vincent-Coca procedure. The group could be determined by the open macroscopic method in a total elapsed time of from two or three minutes, and the interval of fifteen minutes prescribed for observation of the compatibility test proved more than ample, as in no case did agglutination appear after five minutes that had not already occurred. "Universal" donors with agglutinin titer potentially dangerous for A or B recipients could be detected by agglutination in the 1:5 mixture of donor's and recipient's blood, and many times we were able to employ emergency "universal" donors with perfect safety. Occasionally "universal" donors were used two or three times for one patient without ill effect. By virtue of the same quantitative feature, low titered A donors and occasionally B donors were safely selected for "universal" recipients.¹¹ On completion of these studies we abandoned the old modified Moss and Minot methods and adopted the combined Vincent-Coca technic as a routine. Over a period of nine months blood has been grouped and matched by this method for more than 400 consecutive transfusions without a single reaction due to incompatibility.

SUMMARY AND CONCLUSIONS

This technic combines the principles of the Vincent open macroscopic method for blood grouping and the Coca compatibility test for direct matching.

The advantages of these methods in general, and the combined technic in particular, may be summarized as follows:

1. Both grouping and compatibility may be determined with approximately ten drops of defibrinated whole blood obtained by finger puncture.

2. Venipuncture and separation of cells and serum are unnecessary. This is particularly advantageous when donors must be selected in emergencies from large groups of unknown volunteers, as it saves the time required for preparation of needles and syringes, suspensions and serum.

3. The veins of patients requiring repeated intravenous therapy may be conserved.

4. Provided standardized, high titered test serums are employed, the blood group is usually obvious in less than one minute.

5. Compatibility may be determined with a wide margin of safety in fifteen minutes, and the conditions and

proportions of the proposed transfusion may be duplicated beforehand in vitro, both qualitatively and quantitatively.

6. The time and material consumed in making cover slip preparations are saved.

7. "Universal" donors with agglutinin titer dangerous for A or B recipients can be detected by the 1:5 mixture of donor's and recipient's blood.

8. Low titered A donors may be selected for "universal" recipients.

9. The total elapsed time from the arrival of unknown donors to the final reading of the compatibility test has been reduced to thirty minutes, and often the blood may be drawn in twenty minutes pending the final reading.

SWELLING OF THE ARM FOLLOWING RADICAL MAMMECTOMY

RÔLE OF THE AXILLARY VEIN IN PRODUCTION OF EDEMA OF THE ARM FOLLOWING RADICAL REMOVAL OF THE BREAST

JAMES ROSS VEAL, M.D.

NEW ORLEANS

The swelling of the arm which may follow radical mamnectomy for cancer of the breast is still a problem that occasionally confronts every surgeon who performs this operation, though for some reason the literature is singularly barren of any recent discussion of it. The classic contribution to the subject was made by Halsted¹ in 1921, in a paper entitled "The Swelling of the Arm After Operation for Cancer of the Breast—Elephantiasis Chirurgical: Its Causes and Prevention," and reference to this study is necessarily the starting point of any new consideration of this problem. Indeed, nothing of any special importance has been added to the subject since the publication of that paper.

As Halsted¹ points out, his original operation for cancer of the breast, which "lies buried," as he puts it, in a paper under another title published in 1891, was practically the only procedure used in his clinic until 1913. Excellent as the operation was in its general principles, it had many disadvantages, one of the chief of which was the marked narrowing of the axillary fossa caused by the method employed in the radical dissection of the axilla, as a result of which there was frequently a marked limitation of the movement of the arm. In 1913, therefore, he devised another method of radical mamnectomy, and that new procedure had been in use nine years when the 1921 paper appeared. His comment on it can best be quoted in his own words:

"Nine years have now elapsed," he writes, "since the publication of my paper on 'Developments in the Skin-Grafting Operation for Cancer of the Breast,' in which a modified incision and radical changes in the manner of closing the wound were advocated; but I was not then able to offer an explanation altogether satisfactory to myself of the fact that the swelling of the arm which not infrequently followed our original procedure became almost immediately after the adoption of the modifications described in the latter paper a complication of rare occurrence." In other words, as not infrequently happens, a procedure devised to remedy one

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1. Halsted, W. S.: The Swelling of the Arm After Operation for Cancer of the Breast—Elephantiasis Chirurgical: Its Causes and Prevention, *Bull. Johns Hopkins Hosp.* 22: 309-313 (Oct.) 1921.

16. Moss, W. L.: Classification and Treatment of Anemias and Hemorrhagic Diseases, in *Forchheimer's Therapeutics of Internal Diseases*, edited by Billings and Irons, New York, D. Appleton & Co. 5: 813, 1914.

condition accidentally produced excellent results in another toward which it was not primarily directed.

Rare though the complication had become, however, it was still occurring, and Halsted had devoted much thought and effort toward its elucidation. Experimental attempts to produce edema of the extremities by the mere severing of lymphatics and veins had not been successful. In these experiments, performed by Reichert and Bidgood in Halsted's own laboratory, all the tissues of the thigh were severed except the femoral artery and vein, the main nerve trunks and the bone. The severed structures were then very carefully reunited by suture. Seven or eight days later, after the reactionary swelling inevitable in such a procedure had subsided, the femoral vein, the only venous structure not previously divided, was ligated below the line of suture. No demonstrable change occurred in the size of the limb, and it was clearly evident that within the brief time which had elapsed since the first operation the lymphaticovenous circulation had been reestablished through the line of suture and the scar. Yet in man a similar occlusion of the axillary vein would produce edema of the hand and arm. That is amply demonstrated by cases in which venous ligation must be done, as in some cases of radical amputation of the breast or in cases of primary or effort thrombosis.

From the negative results of this experimental study and on the basis of his clinical observations, Halsted concluded that the chief cause of late postoperative swelling of the arm after radical mastectomy was a recurrent streptococcal infection of the lymphatics, which he named surgical elephantiasis, or elephantiasis chirurgica. Obstruction of the axillary vein might play some part, he granted, but he did not believe that occlusion of either the venous or the lymphatic channels was sufficient to bring about such a result. His own theory was that infection must necessarily be added to the occlusion. This infection, he believed, usually occurred at operation, though it might not become evident until months or years later, or it might be a reactive inflammation incident to a rapidly growing neoplasm and arising from carcinoma of the axillary glands. Whatever the cause, the result was the same: a brawny, persistent edema of the hand and arm, associated with recurrent attacks of low grade inflammation of the lymphatics and accompanied by systemic reactions such as malaise, low grade fever, and even chills.

Halsted's explanation has been more or less widely accepted to explain postoperative edema of the arm ever since he advanced it, but it obviously does not fit all cases. Not all postoperative edema meets his description, and in very many cases the clinical picture he outlines is entirely lacking. The natural presumption, therefore, is that the axillary vein must play some more important rôle in the production of postoperative edema of the arm than Halsted was willing to assign to it. With the recent development of vasography, consequent on introduction of opaque mediums for visualization of the vascular tree, it has been possible to clear up this point, and I am reporting twenty cases of postoperative edema of the arm which I have studied by this method.

By means of the introduction of stabilized thorium dioxide into the median basilic, the basilic or the

brachial vein I have found it possible to visualize the entire brachial, axillary and subclavian venous system, as well as their collateral veins.² As a result, I have been able to demonstrate points of constriction or occlusion in the axillary vein and to say with a fair degree of positiveness that this vein does or does not play a part in the production of the postoperative edema in any given case. The technic I shall discuss later, but I might say at this point that the agent which I have employed for this purpose is stabilized thorium dioxide. I have used this substance in more than 400 cases of vascular disease during the last four years. I have employed it in doses ranging from 5 to 20 cc., depending on the vessels to be visualized, and with the proper technic have found it entirely satisfactory and free from bad results of any sort. It does not cause pain, it does not damage the blood vessels, and I have seen no immediate or permanent ill effects follow its employment.



Fig. 1.—Patient showing persistent, brawny edema and recurrent carcinoma of the breast. She also gave a history of recurrent redness and tenderness of the entire arm. Note absence of constriction of axillary vein in either abducted or adducted position.

On the basis of my own study, combined with the physical observations and clinical course in the small group of cases that I have observed, I have devised a triple classification for postoperative edema of the arm: lymphatic obstruction (the elephantiasis chirurgica of Halsted), axillary vein constriction or occlusion, and combined lymphatic and venous obstruction. The basis of this classification I shall set forth in the discussion of each group.

LYMPHATIC OBSTRUCTION

The lymphatic type of obstruction may appear shortly after operation or may become apparent months or even years later. The edema is of the type always associated with lymphatic obstruction. It is persistent and brawny, it is only slightly affected by rest, massage or elevation, and it may be associated, as Halsted noted, with recurrent inflammatory reactions. The pathology is essentially a lymphatic obstruction caused by lymphangitis.

2. Veal, J. R., and McFetridge, E. M.: Primary Axillary Thrombosis: Anatomic and Roentgenologic Study of Certain Etiologic Factors, and a Consideration of Venography as a Diagnostic Measure, *Arch. Surg.* 51: 271-289 (Aug.) 1935

which, as Halsted pointed out, is apparently of streptococcic origin. My study of the local vascular supply after its visualization by thorium dioxide confirms, at least by inference, the lymphatic origin of this type of edema; the axillary vein shows no constriction or obstruction at any point throughout its course (fig. 1), and while I cannot say positively, since the tributaries are not visualized, that they play no part in the production of the edema, the inference is that they do not. Certainly the venous supply seems entirely adequate.

VENOUS OBSTRUCTION

In the group of cases that I have classified as due to venous obstruction the clinical picture is very different. In them the edema is soft and pitting in type, and it subsides partially or completely when the arm is elevated. The many cases in which this type of edema is

with the cervical veins. My studies show that when the vein is only partially occluded there is little evidence of collateral circulation, whereas a more or less adequate collateral circulation always tends to develop if the vein is completely occluded.

In the cases that I have studied, various causes of obstruction of the axillary vein are evident. Frequently the point of constriction is at the site of scar formation from the axillary dissection and operative incision (fig. 4). As one of the cases demonstrates, such scars may contract and actually include the axillary vein in the fibrous tissue. Another case of complete occlusion resulted from the attachment of the scar at the apex of the axilla. I have concluded, too, that operative trauma undoubtedly plays an important part in such occlusions. The vein may be accidentally torn and require ligation, or a thrombosis may develop as the

result of the careless placing of hemostats. In still other cases, constriction or thrombosis may be caused by the ligation of the tributaries too close to the parent vein. A large fat fold, again, may develop in the axillary region, impinging on the vein and producing obstruction (fig. 6).

An important cause of constriction or obstruction of the axillary vein is the pressure of enlarged lymph nodes from recurrent carcinoma. It should be pointed out, too, that the original malignant growth may invade the vein and cause a preoperative edema of the arm. Such a case in my own series is worth reporting in detail:

A Negro woman, aged 56, noted a mass in her left breast six months before she applied for treatment. Two months later the left arm became enlarged and swollen, the swelling lasting for some six weeks. When she was examined after her admission to the hospital there was no evidence of swelling in the arm, and the carcinoma was moderately advanced. Vasography showed

complete occlusion of the axillary vein, with five smaller collateral veins encircling the cancerous axillary nodes palpable in the axilla (fig. 2). Clearly the obstruction to the axillary vein was adequately cared for by the development of this collateral circulation. At operation the axillary vein presented itself merely as a hard cord. Unfortunately, in order to clean out the axilla, it was necessary to sacrifice several collateral vessels, and the edema that developed promptly after operation was not unexpected. At this time, four months after operation, the arm is still swollen.

Practically no attention has been paid, so far as I can determine, to the position of the arm in the production of the edema, yet my own observation shows that this is a very important consideration. Sometimes careful questioning was necessary to produce the information, but several patients observed for themselves that edema

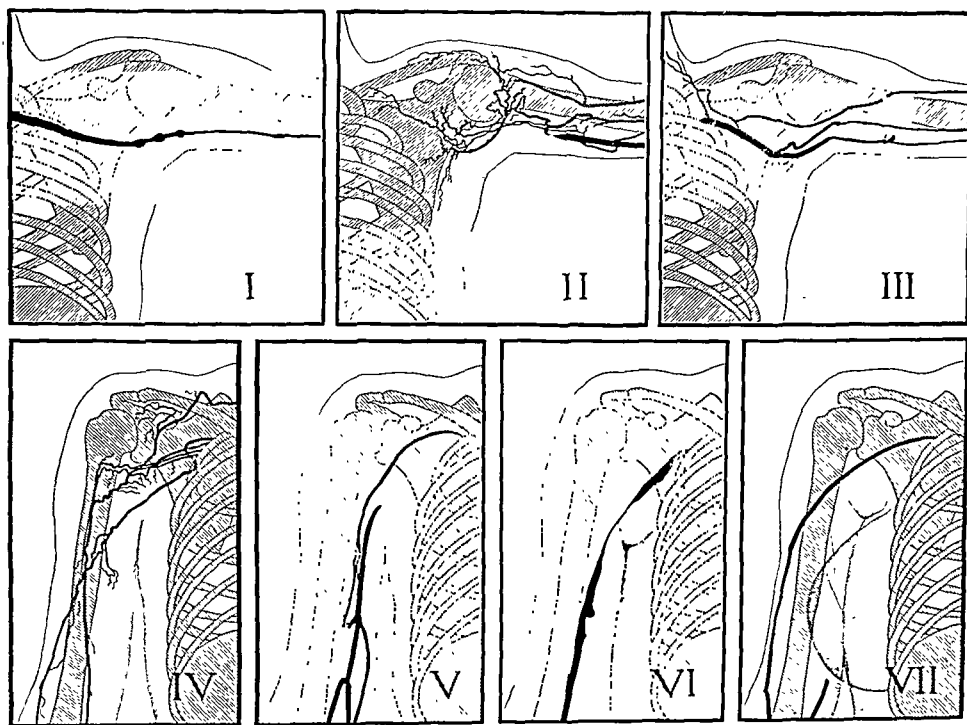


Fig. 2.—Types of axillary vein obstruction in a series of cases of edema of the arm following radical removal of the breast. Pen drawings from venographs. I. Normal axillary vein. Note position of valves and general contour of vein. II. Complete axillary vein obstruction with development of collateral circulation. III. Complete occlusion of the axillary vein from scar formation. Note the development of collaterals and the backflow of opaque mediums into the tributaries. IV. Complete axillary vein occlusion from invasion by carcinoma. Note development of collaterals. Edema subsided in this arm after the development of these collaterals. V. Axillary vein constriction with arm in dependent position. The constriction occurred at the site of recurrence of the carcinoma. The vein is patent when the arm is abducted. VI. Constriction of axillary vein by fat fold. Edema only when arm is dependent. Edema rapidly subsides when arm is elevated. Axillary vein is patent when arm is abducted. VII. Complete occlusion of axillary and brachial veins by pressure of large fat folds when arm is held against the side. Edema occurs only when arm is dependent, and subsides rapidly when arm is held away from side.

apparent clearly offer the chief obstacle to a wholesale acceptance of Halsted's theory of recurrent streptococcic lymphangitis as the explanation of all cases in which this complication is apparent.

Vasography in this type of case clearly demonstrates the vascular origin of the edema. The axillary vein is shown to be obstructed or constricted at one point or more than one point along its course (fig. 2). If an adequate collateral circulation has developed, a fact that is evidenced clinically by improvement in the edema or its complete disappearance, new venous channels are seen in the axillary region, or enlarged and tortuous veins may be present in the shoulder and upper part of the chest (fig. 3); such veins may unite with the external mammary vein or may extend upward and unite

did not develop when the arm was held away from the side but only when it hung for a considerable period of time in walking or standing; one patient habitually carried a purse under her arm to preserve the abducted position and thus prevent the edema.

With this point in mind I took all the pictures in two positions, one with the arm by the side, the other with it abducted to an angle of from 45 to 60 degrees, depending on the freedom of movement the axillary scar permitted the patient. In the cases in which edema developed only when the arm was dependent, I noted a uniform constriction of the axillary vein in the first picture and a uniform absence of constriction in the picture taken with the arm in abduction (fig. 7). Failure to take into consideration the position of the arm has undoubtedly led to many errors in the interpretation



Fig. 3.—Complete obstruction of axillary vein from recurrent carcinoma. Note marked development of collaterals over shoulder and chest. Infra-red photograph.

of the rôle of the axillary vein in the production of postoperative edema. At operation or autopsy the vein may seem to be patent merely because examination is made only in the position of abduction.

LYMPHATICOVENOUS OBSTRUCTION

It is a well known fact that prolonged swelling arising from venous constriction or occlusion is likely, if unrelieved, to involve the lymphatic channels also, so that the pathologic condition presented is eventually a dual one. In this type of case the edema is soft and pitting at the onset, to become finally the persistent, brawny type described by Halsted. In such cases there is little or no improvement in the edema after postural treatment or rest and, while attacks of recurrent lymphangitis may occur, they are not usual. In other words, we are dealing in this group of cases with a primary swelling due to venous obstruction, on which is superimposed lymphatic obstruction. The diagnosis is made on the evidence of constriction or obstruction, as shown by vasography, plus the clinical evidence of the lymphatic type of edema.

The technic of vasography is simple. The picture is taken on a 14 by 17 plate, enclosed in a cassette, which is placed beneath the axillary region as the patient lies prone on the x-ray table. The injection is begun only



Fig. 4.—Obstruction of axillary vein by contraction of scar in axilla. The scar tissue has incarcerated the axillary vein. Note development of collaterals as shown by infra-red photograph.

after the machine is focused and all preparations have been made to take the picture; this point is essential. Not more than 12 cc. of thorium dioxide is used; it is

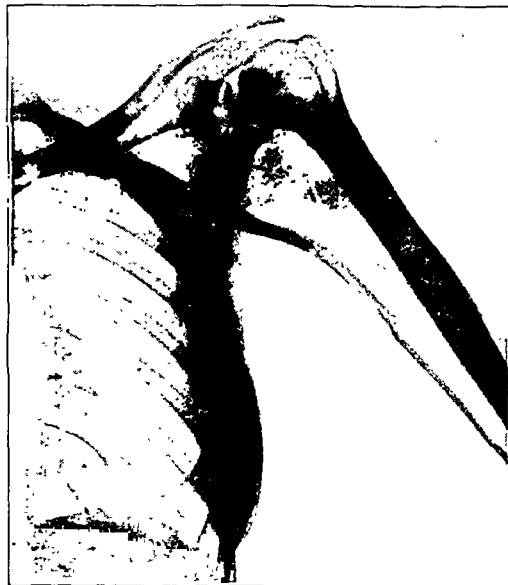


Fig. 5.—Normal axillary vein

placed in a 20 cc. syringe, to which a 20 gage needle is attached. Five or 6 cc. of the solution is injected into the vein selected for puncture, the injection being made slowly and taking at least eight to ten seconds. Immediately on its conclusion, without removal of the needle,

the first exposure is made, the arm being held at an angle of from 45 to 60 degrees away from the chest. Then the arm is brought down to its usual dependent position by the side, a fresh plate is inserted in the cassette, and the remaining solution is injected. The second exposure is made immediately on its completion.

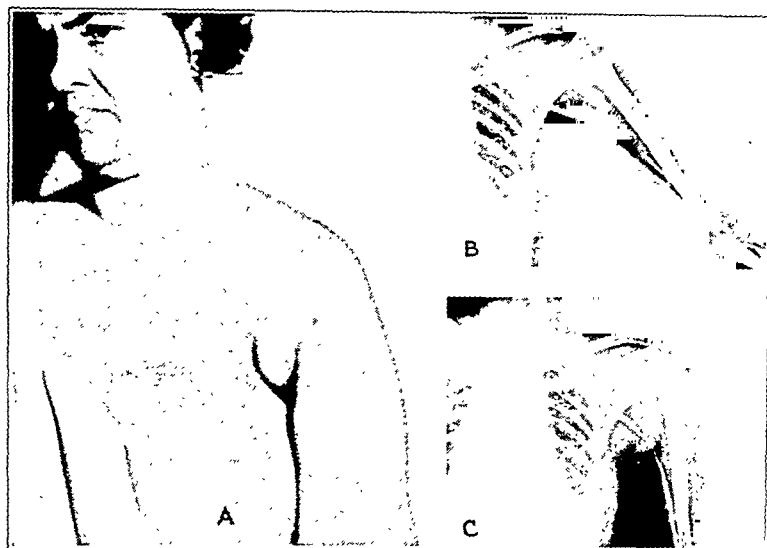


Fig. 6.—The patient presented soft, pitting edema of the arm only when the arm was dependent. Axillary vein patent throughout with arm abducted. On lowering the arm to the side there was marked constriction of the axillary vein by impingement on it of the large fat fold seen in the photograph.

The median antecubital vein may be used as a point of injection, but I have found that the results are not nearly so good as when the brachial or basilic vein is used. The reason is obvious, that the small amount of solution used may flow into the cephalic vein when it reaches the bifurcation of the median antecubital vein, instead of into the axillary vein. When the basilic or the brachial vein is used, the brachial, the axillary and the subclavian veins are visualized to a point near the junction with the innominate vein. It is not possible, with so small an amount of solution, to visualize any of the larger vessels entering the heart. If the arm is so badly swollen that the vein to be injected cannot be identified, a rest of several days, with postural treatment, may improve the condition. If it does not, the brachial artery can be palpated just above the antecubital space and the needle inserted into the brachial vein just to the side of it. I have not found it necessary in any case to make an open incision to expose the vein.

The normal axillary vein is uniform in outline and often has several valves near its middle portion (fig. 5). There is no point of constriction or obstruction, no tributaries are visualized, and there is no evidence of a collateral circulation. The vein gradually enlarges as it approaches the subclavian vein, which itself is visualized for 3 or 4 cm. The innominate vein is not visualized. In the abnormal cases the points of constriction or partial or complete obstruction are readily evident and need no special discussion (fig. 2). As I have already pointed out, there is little or no evidence of collateral circulation when the obstruction is incomplete, but usually definite evidence when it is complete.

While this paper is not a therapeutic consideration of edema of the arm, it might be well to mention several points that naturally present themselves in the light of the previous discussion. Radical removal of the breast is a mutilating operation under the best of circumstances and, like all mutilating procedures, it carries its own penalties. Regardless of the type of incision, and even when the utmost care is exercised, the necessary dissection results in more or less axillary scarring and the loss of more or less elasticity of the overlying skin. Under the happiest circumstances the axillary fossa becomes shallower and narrower, and the removal of the muscular portion of the anterior axillary fold is an essential part of the procedure. It is scarcely necessary to labor the point that all these changes will be exaggerated when incisions are unwisely extended into the axilla or when the axillary dissection is carelessly done.

Since the axillary vein, as I have pointed out, may be included in the axillary scar (fig. 4), the skin in this area should be kept as free from scarring as possible. In thin subjects it may be wise to transplant a small amount of fat tissue between the axillary vein and the skin, in order to avoid this contingency. Stout patients, on the other hand, should be warned not to gain weight following operation, for equally bad results may follow the impingement of a fold of fat on the axillary vein. The vein itself should be handled very gently and under no circumstances should drains be laid against it. The flow of blood in the axillary vein, in the recumbent position with the arm by the side, is slow. I have demonstrated this point in studying by vasography the effects of position on the rate of

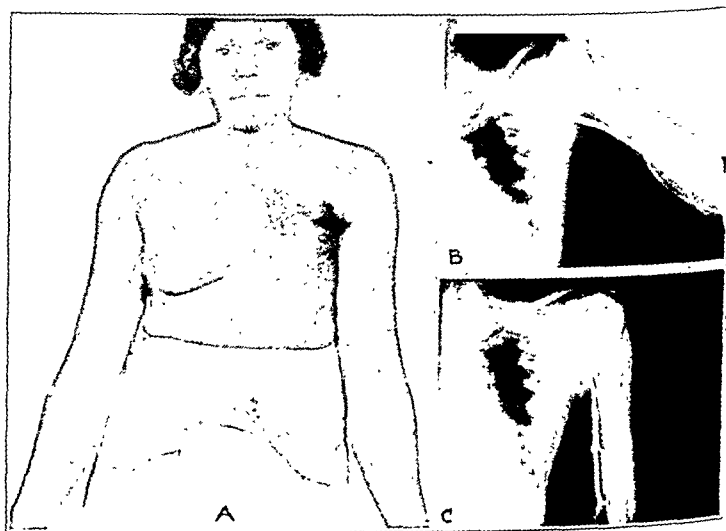


Fig. 7.—Recurrent carcinoma in scar and axilla. Soft, pitting edema when arm is dependent rapidly subsides when arm is elevated. Note patency of axillary vein when arm is abducted and constriction when arm hangs by the side. The point of constriction is the site of recurrent carcinoma.

blood flow in the axillary vein. Trauma to the vein, therefore, may easily produce a thrombosis, as may the placing of ligatures on the tributary veins too close to the parent vein. The cephalic vein should not be sacrificed, for it plays an essential part in the venous return. It is easier to prevent postoperative edema of the arm after radical mastectomy than to cure it when

it has occurred. Indeed, no satisfactory procedure for its relief has yet been devised, and when the underlying cause is a recurrence of the malignant condition in the incision or in the axilla, the situation is frankly hopeless.

SUMMARY

1. Edema of the arm following radical removal of the breast may be due to lymphatic obstruction, to venous obstruction, or to a combination of the two factors. The present small series of twenty cases indicates that venous obstruction is the most common cause.

2. Obstruction of the axillary vein is due to various causes, the chief of which are the pressure of the malignant growth itself in its primary or secondary manifestations, scar formation, and the impingement of fat folds.

3. Constriction may occur only when the arm is dependent and may disappear when the elevation of the arm restores the patency of the vein.

4. A collateral circulation may develop adequate to take care of the venous return.

5. Venography with stabilized thorium dioxide is of value in determining the cause of the edema, but no procedures have yet been devised to remedy it. The wisdom of prophylaxis is therefore obvious.

SIGNIFICANCE OF GONOCOCCUS COMPLEMENT FIXATION TEST AS A DIAGNOSTIC AID

IN THE STUDY OF ARTHRITIS

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The prognosis in any case of gonorrheal arthritis is dependent on (1) the virulence of the offending gonococcus strain, (2) the persistence of the local infection, (3) the resistance of the individual and (4) the promptness with which appropriate treatment is instituted. However, the prompt institution of appropriate treatment is dependent on one's ability to distinguish gonorrheal arthritis from the other arthritides. Such differentiation is at times difficult because one can neither elicit a history of previous gonorrheal infection nor isolate the gonococcus from the focus of infection. In such instances the need of a laboratory test indicating the possible existence of a gonococcal infection is all too apparent.

Is the complement fixation test for the gonococcus as it is now done as a routine in public health laboratories sufficiently accurate to warrant its employment as a diagnostic aid in the study of arthritic patients? In order to answer this question one must do routine fixation tests on a large series of patients representing proved cases of the various arthritides, gonorrheal and nongonorrheal in origin. This we have done.

Dr. Warren was Dalton Scholar, Massachusetts General Hospital, 1933-1934 and 1934-1935.

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From the Medical Clinic of the Massachusetts General Hospital, the Department of Medicine, Harvard Medical School, and the Wassermann Laboratory of the Department of Public Health of the Commonwealth of Massachusetts.

The reports of certain workers¹ would signify that it can be relied on as a diagnostic test, yet one finds few clinics in which it is employed with any regularity. Why it has never gained wide acceptance as a diagnostic aid in the study of patients with arthritis is not apparent. It may be that most physicians consider an additional laboratory test of this sort unnecessary. Such has not been our experience. We frequently have difficulty in establishing the diagnosis of gonorrheal arthritis because (1) it may come on months after the initial infection and (2) its clinical manifestations are frequently so varied that it mimics other types of arthritis. In consequence, many cases are misdiagnosed acute rheumatic fever, gout, nonspecific infectious arthritis, rheumatoid arthritis and the like. Others may have considered the reported series too small to consider that the results obtained were necessarily of significance or that the cases studied were not necessarily proved cases of gonorrheal arthritis. Negative fixation tests in proved cases of gonorrheal arthritis and false positive tests in nongonorrheal arthritic patients may have been another reason for not employing it regularly. Certainly our first experiences with the gonococcus complement fixation test in cases that were ultimately proved to be gonorrheal arthritis were sufficiently contradictory to discourage one from employing it as a routine diagnostic aid.

The two brief cases reported here illustrate how a positive fixation test may be the first clue that one is dealing with a case of gonorrheal arthritis and that a negative fixation test may be misleading if one fails to heed the suggested leads obtained in the history.

CASE 1.—Miss F. H. K., aged 19, was admitted to the medical ward Dec. 7, 1931, with a diagnosis of rheumatic fever. Nineteen days prior to entrance she contracted a mild infection of the upper respiratory tract. Three days later she considered herself well. Five days prior to entry her left knee became painful but showed no evidence of inflammation. That night she experienced chilly sensations and a true chill. For the next four days she suffered from a migratory arthritis involving the wrists, shoulders, elbows, fingers, knees, ankles and neck. Each joint was exquisitely painful to touch during the time of involvement but apparently normal when symptom free. She stated that she had never had a gonorrheal infection.

On entrance her temperature was 103 F. Leukocytes numbered 16,000, with 78 per cent polymorphonuclears. Physical examination was essentially negative except for moderate obesity and frontal sinus tenderness, and the wrists and the left knee were slightly swollen, red and tender. The cervical spine, temporomandibular joints, shoulders, elbows, wrists, fingers, knees and ankles were exquisitely tender on motion.

1. These include:

Green, F.: Complement Fixation in Gonorrheal Arthritis, *Canad. M. A. J.* 28:289-292 (March) 1933.

Höder, F.: Komplementbindungsversuche bei Gonorrhöe (K. B. R.), *München. med. Wchnschr.* 77:1093-1094 (June 27) 1930.

Engelhardt, W., and Summet, P.: Unsere Erfahrungen mit der Komplementbindungsmethode bei gonorrhöischen Erkrankungen, *Arch. f. klin. u. exp. Med.* 140:252, 1930.

Osmond, T. E., and Oliver, J. O.: The Value of the Complement Fixation Test in Gonorrhea, *Brit. J. Ven. Dis.* 5:281-301 (Oct.) 1929.

Myers, W. K., and Keefer, C. S.: The Gonococcal Complement Fixation Test in the Blood and Synovial Fluid of Patients with Arthritis, *New England J. Med.* 211:101-103 (July 19) 1934.

Young, H. H., and Davis, D. M.: *Young's Practice of Urology*, Philadelphia, W. B. Saunders Company 1:209, 1926.

Tulloch, W. J.: A System of Bacteriology in Relation to Medicine: Chapter IV. The Gonococcus, National Research Council, London, His Majesty's Stationery Office 2:257, 1929.

Holbøll, S. A.: Om gonorrhöiske Ledlidelser, specielt med Hensyn til Komplementbindingsreaktionen, *Forhold ved disse, Høstet 1932*.

Blix, E.: Komplementbindingsreaktionen i Gonorrhea, *Acta med. Scandinav. (suppl.)* 50:332, 1932.

Chwalla, R.: Ueber den praktischen Wert der Komplementbindungsreaktion in der Klinik der Gonorrhöe des Mannes, *Wien. klin. Wchnschr.* 46:169-172 (Feb. 10), 206-210 (Feb. 17) 1933.

Budlovsky, G., and Sagher, F.: Die klinische Verwerthbarkeit der Komplementbindungsreaktion für Gonorrhöe, *Med. Klin.* 20:1716-1718 (Dec. 15) 1933.

Because of the preceding infection of the upper respiratory tract, migratory arthritis and a drop in temperature following the administration of salicylates, a diagnosis of rheumatic fever was made. However, when she was seen four days after admission it was found that despite adequate doses of salicylates she continued to have a temperature of from 100 to 101 F. and required opiates to control the pain. At this time the only joints complained of were the wrists, fingers and left knee. The wrists, midphalangeal joints and left knee were red, hot, exquisitely tender to touch and painful on attempted motion. Because of the frank chill (period of metastasis) followed by a migratory arthritis sufficiently painful to require opiates, finally settling and remaining in a few joints, a diagnosis of gonorrheal arthritis was suggested, and a complement fixation test for the gonococcus, pelvic examination and complete set of pelvic smears were advised. The gynecologist reported the pelvic examination negative. Two complete sets of pelvic smears were negative for gonococci. Despite the suggested evidence of gonorrheal arthritis, a diagnosis of rheumatic fever was adhered to by some and agreed to by an orthopedic consultant.

December 15 her condition was essentially unchanged. The wrists and midphalangeal joints were subsiding but the left knee appeared more swollen, was hot to the touch and extremely painful and contained an increased amount of synovial fluid. On this day the complement fixation test was reported positive. Aspiration of the knee joint was advised.

TABLE 1.—Titration of Complement

Row 1	Complement.....	0.5 cc.	0.4 cc.	0.3 cc.	0.2 cc.	0.1 cc.
	Amboceptor.....	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.
	Sheep's cells.....	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.
	Saline solution.....	.....	0.1 cc.	0.2 cc.	0.3 cc.	0.4 cc.
Row 2	Complement.....	1.0 cc.				
	Amboceptor.....	.....	0.5 cc.			
	Sheep's cells.....	0.5 cc.	0.5 cc.	0.5 cc.		
	Saline solution.....	.....	0.5 cc.	1.0 cc.		

TABLE 2.—Titration for the Anticomplementary Effect of the Antigen

Antigen.....	0.5 cc.	0.4 cc.	0.3 cc.	0.2 cc.	0.1 cc.
Dilute complement.....	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.	0.5 cc.
Saline solution.....	.....	0.1 cc.	0.1 cc.	0.1 cc.	0.1 cc.

In view of the orthopedic opinion, it was delayed. When it was done some fourteen days later a greenish purulent fluid was obtained. Stained smears of this fluid revealed gram-negative intracellular diplococci.

In this instance of an arthritis simulating rheumatic fever, the positive complement fixation test was the first clue that the suggested diagnosis of gonorrheal arthritis was correct. This first clue was finally confirmed by isolating the gonococcus on direct smear of the synovial fluid.

CASE 2.—Mrs. M. C., aged 34, entered the hospital Jan. 15, 1932, complaining of painful joints. Eleven weeks prior to entry she experienced a sudden onset of intermittent pain under the right costal margin without associated gastro-intestinal symptoms, jaundice or fever. The pain was so severe that she was given opiates. Forty-eight hours later she noted swelling and pain in the right shoulder sufficiently severe to limit all motions and to require opiates. The intense pain persisted for four weeks. She then noted swelling and pain of the second right toe. In addition, she had recurrent pain and stiffness in the left shoulder, cervical spine and right sternoclavicular joint. She admitted having dysuria during the first week of her illness.

Physical examination was essentially negative except for the skeletal system, which revealed 25 per cent limitation of all motions of the cervical spine, approximately 50 per cent limitation of all motions of the right shoulder and a red, indolent appearing, right second toe, which was tender on pressure or on extremes of motion. She was afebrile and did not have a leukocytosis or elevation of polymorphonuclear cells. Pelvic examination was negative except for a slight vaginal discharge.

Three complete sets of pelvic smears were negative for gonococci. The complement fixation test for the gonococcus was negative.

She had been married six months prior to her illness. Her husband admitted having had a gonorrheal infection three years before, with recurrent morning urethral discharge prior to his wife's illness. Therefore there was sufficient evidence to lead one to suspect that the existing arthritis was due to the gonococcus, but all efforts to prove this had been fruitless. She was finally given 50,000,000 gonococci subcutaneously in the form of a stock vaccine. Some thirty-six hours later there was noted an increase in the joint symptoms as well as the appearance of a red, painful, tender sternoclavicular joint. Forty-eight hours later she reported an increase in the vaginal discharge. Examination of vaginal smears taken at this time revealed intracellular gonococci.

In this case of suspected gonorrheal arthritis the complement fixation test was negative, yet the suspicion that the arthritis was gonorrheal in origin was sufficiently great to force one to continue the search for gonococci despite the negative fixation test. This case illustrates the necessity in certain instances of following leads obtained in the history despite the existence of a negative complement fixation test. It further illustrates that occasionally the administration of a gonococcus vaccine may be responsible for sufficient activation of the original focus to allow for the demonstration of the gonococcus.

Because of such discrepancies we undertook the study of a sufficiently large number of cases, representing the various types of joint disease, in order to establish the significance of the test as a diagnostic aid. We have employed the test with some regularity in the study of arthritic patients since 1931. During the next four years, 614 tests were done on serums from 316 patients. The analysis of this series of tests serves as the basis of this report.

I. THE GONOCOCCUS COMPLEMENT FIXATION TEST EMPLOYED

All tests were done in the Wassermann Laboratory of the Department of Public Health of the Commonwealth of Massachusetts. This test is done as follows:

The following reagents are used:

1. *Antigen*.—Four Torrey strains (numbers 8, 15, 32 and 34) of the gonococcus are grown on neutral veal, 1 per cent starch agar, for from twenty-four to forty-eight hours. This growth is washed off with 0.5 per cent phenol in distilled water and diluted according to the Hopkin method so that 2,500 million organisms are contained in 1 cc. This suspension is shaken in a shaking machine for about sixteen hours. It is then kept in a refrigerator.

2. *Complement*.—A 10 per cent solution of guinea-pig serum prepared from the mixed blood of five or more guinea-pigs.

3. *Sheep's Cells*.—A 5 per cent suspension of washed sheep's corpuscles. This is based on whole defibrinated blood and not on packed cells.

4. *Amboceptor*.—Antisheep, diluted so that 0.25 cc. induces hemolysis of 0.5 cc. of the washed sheep's corpuscles in the presence of 0.5 cc. of the complement. Twice this amount, or 0.5 cc., is used in the titration and tests.

5. *Saline*.—An 0.85 per cent solution of sodium chloride in distilled water.

6. *Sensitized Cells*.—Equal parts of the 5 per cent sheep's cells and diluted amboceptor.

7. *Patient's Serum*.—Inactivated by heating at 55 C. for one-half hour.

For each day's work the following routine is carried out: complement titration (table 1); antigen titration (table 2), and the test (table 3).

The tubes are incubated at 37 C. for one-half hour and are then read. The tube in row 1 that contains the smallest amount of complement causing complete

hemolysis is chosen as the unit of complement. The 10 per cent solution is then diluted so that 0.5 cc. contains two units. This is called dilute complement. The tubes in row 2 are used as controls of the hemolytic system and hemolysis should not occur in any one tube.

Incubation is carried out for forty minutes at 37 C. in a water bath, and 1 cc. of sensitized cells is added to each tube. The tubes are incubated again for one hour and then read; 0.05 cc. less than the largest amount of antigen that permits complete hemolysis is used in the test. If, for example, the tubes that contain 0.1 cc. and 0.2 cc. of antigen show complete hemolysis and the one that has 0.3 cc. shows partial hemolysis, then 0.15 cc. of antigen would be used in the test. This will be designated in table 3 as 0.*x* cc.

Saline solution is added to each tube to make the volume 1 cc.

After the tubes are incubated for forty minutes at 37 C. in a water bath, 1 cc. of sensitized cells is added to each tube and then incubated for another hour. The results in tube 1 are given in table 4.

For a satisfactory test, tube 2 (the antigen control) and tube 3 (the serum control) should show complete hemolysis.

Essentially all the serums were tested as described with the exception of a few in the earlier cases of gonorrheal arthritis, which were selected from the hospital records to supplement the present series. All tests reported as doubtful were omitted because it was found that approximately the same percentage of such reactions occurred in each type of arthritis studied.

II. THE CLASSIFICATION OF JOINT DISEASES

The patients in this series suffering from joint disease were classified according to a simple working plan. The use of some such classification is essential to the differentiation of the various arthritides. It has been our belief that a classification based on etiology best serves the practicing physician in diagnosing and treating patients with arthritis.

The classification we employ is as follows:

- A. *Joint Disease of Known Etiology*.—1. Traumatic; e. g., associated with internal derangement, and fractures into joints and so on.
2. Infection; e. g., due to the gonococcus, tubercle bacillus, streptococcus and other organisms.
3. Neuropathic; e. g., associated with tabes, syringomyelia, leprosy.
4. Metabolic; e. g., associated with gout.
5. Constitutional; e. g., arthritis associated with hemophilia.
6. Anaphylactic; e. g., arthritis associated with serum sickness.
- B. *Joint Disease of Unknown Etiology*.—1. Degenerative joint disease, degenerative, hypertrophic or osteo-arthritis.
2. Rheumatoid arthritis, proliferative, atrophic or chronic infectious arthritis.
- (a) Typical.
- (b) Atypical (often called nonspecific infectious arthritis because the causative bacteriologic agent cannot be demonstrated).
- (c) Spondylitis deformans, Strümpell-Marie or von Bechterew's type, or rheumatoid arthritis of the spine.
3. Rheumatic fever.

This classification is probably self explanatory save for the subdivisions under rheumatoid arthritis. Cases classified as typical rheumatoid arthritis probably require no further comment. However, the cases included in this series under the grouping atypical rheumatoid arthritis do. This group represents cases that do not exhibit the characteristic history, habitus and physical conditions observed in a typical case of rheumatoid arthritis. The onset is usually sudden,

without preceding prodromes, often following an acute infection or associated with some obvious focus of infection. Such patients do not present the usual asthenic type of habitus with evidence of increased vasomotor activity. The joint involvement is not symmetrical, and the large joints are more commonly affected. The monarticular form may be encountered. The arthritis is frequently polyarticular and migratory in nature. The response to salicylates occasionally may be complete. Such patients may recover completely even though the supposed causative focus of infection is not removed. Such remissions or periods of complete recovery may last for months or years but will subsequently be followed by a relapse. The disease in such instances may be characterized by a number of remissions and relapses before going into the chronic progressive phase.

The fact that the remissions frequently occur spontaneously has caused many workers to draw erroneous conclusions concerning the specific cause and cure of this, the atypical form of rheumatoid arthritis. They are all too frequently labeled the "focal infection type of arthritis" or the nonspecific infectious type of

TABLE 3.—The Test

	Tube 1	Tube 2	Tube 3
Patient's serum	0.1 cc.	.....	0.2 cc.
Antigen	0. <i>x</i> cc.	0. <i>x</i> cc.	
Dilute complement	0.5 cc.	0.5 cc.	0.5 cc.

TABLE 4.—Results in Tube 1

5 equals complete inhibition of hemolysis
4 equals 70 to 90% inhibition of hemolysis
3 equals 50 to 70% inhibition of hemolysis
2 equals 20 to 50% inhibition of hemolysis
1 equals up to 20% inhibition of hemolysis
Reactions are reported as:
Positive, from 50 to 100% inhibition of hemolysis
Doubtful, from 20 to 50% inhibition of hemolysis
Negative, up to 20% inhibition of hemolysis

arthritis. If, in such cases, one will allow for the passage of time before making an absolute diagnosis, the true nature of the type of arthritis present will usually become all too apparent.

We well appreciate that, if such a disease as non-specific infectious arthritis (cases in which the exact offending bacteriologic agent is never identified) occurs, a few of our atypical rheumatoid arthritic cases should have been so classified. However, in view of the subsequent events in this group of patients we believe that the original diagnosis was justified. Irrespective of our interpretation of this group, it is essential to separate them, because they usually carry a better immediate prognosis. In this particular study some such subdivision is desired because such cases represent the type of arthritis that might readily be confused with gonorrheal arthritis.

Because spondylitis may be a resulting complication of a gonorrheal infection, the belief is held by some that spondylitis of the Strümpell-Marie type is due to the gonococcus.² It is true that it occurs more often in men, frequently in association with a prostatitis. However, if one follows a group of patients with spondylitis for a sufficiently long time, many are encountered in whom multiple joint involvement subsequently develops indistinguishable from rheumatoid arthritis. As a rule, the spondylitis appears first; however, one does see patients in whom the spondylitis developed

2. Miller, J. L.: Chronic Rheumatic Diseases of the Spine, Arch. Int. Med. 54: 161-169 (Aug.) 1934.

subsequent to multiple joint involvement. For these and other reasons we are of the belief that this group of arthritic cases comprises a subdivision of the rheumatoid type of arthritis.

III. METHODS EMPLOYED IN STUDYING EACH PATIENT

It is obvious that, if one is to evaluate correctly the significance of the gonococcus complement fixation test as a diagnostic aid in the study of patients with arthritis, one must be certain of two facts concerning all patients studied: (1) that the diagnosis as to the type of joint disease present is correct and (2) that the patient does or does not have a coexisting gonorrheal infection. Therefore, the following minimal studies were carried out on all patients: (1) a history taken by at least two physicians, (2) a complete physical examination, (3) roentgenograms of at least the involved joints, (4) a fasting blood uric acid, (5)

In three instances a diagnosis of rheumatoid arthritis with an accompanying gonorrheal infection was made. These three cases will be found recorded separately.

RESULTS

An examination of table 5 shows that 91.3 per cent of the 439 tests done on the serums of 206 individuals with various types of joint diseases in whom no history or physical manifestations suggestive of gonorrheal infection could be found gave negative reactions at all times. Likewise, 100 per cent of all tests done on the serums of thirty-three patients suffering from maladies other than joint disease or in whom no organic disease was discovered were negative. On the other hand, serums from sixty-eight, or 91.9 per cent, of seventy-four patients diagnosed as having a proved or probable gonorrheal arthritis gave a positive reaction at some time during the course of their disease. If the results in this group of patients are studied in more

TABLE 5.—Results of 614 Tests on 316 Patients

Disease	Total Number of Cases	Total Number of Tests	Cases in Which All Tests Were Positive		Cases Giving Negative and Positive Tests		Cases in Which All Tests Were Negative		Positive Tests		Negative Tests	
			Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Proved gonorrheal arthritis.....	52	82	42	80.7	4	7.7	6	11.5	72	87.5	10	12.5
Probable gonorrheal arthritis.....	22	43	14	63.6	8	36.3	0	0	30	69.8	13	30.2
Total cases of proved and probable gonorrheal arthritis.....	74	125	56	75.7	12	16.2	6	8.1	102	81.6	23	18.4
Genito-urinary gonorrheal infection accompanying rheumatoid arthritis.....	3	9	2	66.6	1	33.3	0	0	6	66.6	3	33.3
Other arthritides												
Rheumatoid arthritis												
(a) Typical.....	151	352	3	1.9	13	8.6	135	89.4	27	7.7	325	92.3
.....	15	20	0	0	1	6.6	14	93.3	1	5.0	19	95.0
.....	9	15	0	0	1	11.2	8	88.8	1	6.6	14	93.4
.....	10	12	0	0	0	0	10	100.0	0	0	12	100.0
Tuberculous arthritis.....	1	1	0	0	0	0	1	100.0	0	0	1	100.0
Intermittent hydro-arthritis.....	1	4	0	0	1	100.0	0	0	2	50.0	2	50.0
Gout.....	8	16	0	0	1	12.5	7	87.5	1	6.3	15	93.7
Degenerative arthritis.....	11	19	0	0	0	0	11	100.0	0	0	19	100.0
Nonarthritides												
Miscellaneous.....	22	20	0	0	0	0	22	100.0	0	0	20	100.0
No organic disease.....	11	12	0	0	0	0	11	100.0	0	0	12	100.0
Total.....	316	614										
Total cases of proved and probable gonorrheal arthritis.....	74	125	56	75.7	12	16.2	6	8.1	102	81.6	23	18.4
.....	206	439	3	1.5	17	8.3	186	91.3	32	7.3	407	92.7
.....	33	41	0	0	0	0	33	100.0	0	0	41	100.0

* Strümpell-Marie type.

a sedimentation rate, (6) a careful search for foci of infection by a nose and throat specialist, a gynecologist and a genito-urinary consultant, (7) at least one complete set of pelvic smears or smears obtained at the time of prostatic massage, and (8) at least one complement fixation test for the gonococcus. In any suggestive cases, certain of these tests were done repeatedly. The final diagnosis was often deferred until the course of the disease had been observed for one or more years. In this way many errors in diagnosis and classification of the arthritis were avoided and in turn errors in the interpretation of the value of the complement fixation test were prevented.

No case was included as proved gonorrheal arthritis unless the following requirements were met: (1) a history or physical abnormalities indicating a previous or existing gonorrheal infection, (2) a history of joint disease consistent with gonorrheal arthritis and (3) the isolation on smear or culture of the gonococcus from the primary focus or synovial fluid. Probable gonorrheal arthritis was diagnosed when the first two of these requirements were met, but no gonococci were ever isolated. The follow-up studies in these cases proved the original diagnosis to be correct.

detail, one finds that at least one positive fixation test was obtained in 100 per cent of the cases, provided the serum was obtained during the period of active arthritis. However, one notes that in only 80.7 per cent of the proved cases of gonorrheal arthritis and 63.6 per cent of the probable cases was the test always positive. One further observes that in six of the proved cases all tests done were always negative. Only one sample of serum was obtained from each of these six patients. In four instances the test was done on serums obtained early in the disease (first, second, fourth and sixth days respectively), and in the other two patients the test was done on serums obtained two and two and one-half years after all joint symptoms had disappeared.

The percentages just noted undoubtedly give too favorable an impression as to the value of the test as a diagnostic aid. The practical question to be answered is If the test is positive, what is the probability that the arthritic patient has a gonorrheal arthritis, and, if negative, how certain can one be that the gonococcus has been ruled out as the etiologic agent? One hundred and forty positive tests were obtained in ninety-one of the 316 patients. Of these, 108 tests were done on serums obtained from patients in whom the final diag-

nosis was either proved or probable gonorrheal arthritis (seventy-four cases) and rheumatoid arthritis with an accompanying gonorrhea (three cases). Thus, only 77 per cent of our routine clinic tests done during all phases of the disease that were reported as positive agreed with the final clinical diagnosis. Likewise, twenty-three of 125, or 18.4 per cent, tests made on patients with proved or probable gonorrheal arthritis were negative. Therefore, in tests taken as a routine in an arthritic clinic at all stages of the arthritic process a positive fixation pointed to the gonococcus as the etiologic agent of the arthritis in approximately 80 per cent of the cases, whereas a negative test failed to rule out the gonococcus as the etiologic agent in approximately one case in five.

The cases of typical rheumatoid arthritis represent the largest series of any one type of arthritis contained in our control group. As one can see from table 5, 352 tests were done on the serums of 151 such patients. The serums of three, or 1.9 per cent, of these patients were always positive. Thirteen cases, or 8.6 per cent, gave both positive and negative tests. However, 325 of the 352 tests were negative (92.3 per cent). From these results on 151 proved cases of rheumatoid arthritis it is apparent that the complement fixation test for the gonococcus can be relied on as a diagnostic aid.

A comparison of the results of the complement fixation test in gonorrheal arthritis with those in atypical rheumatoid arthritis and rheumatic fever is more pertinent because these arthritides are more apt to mimic gonorrheal arthritis. Only twelve tests were made on patients with acute rheumatic fever, but these were all negative. Of the twenty tests done on serums from fifteen patients with atypical rheumatoid arthritis, only one positive test was recorded. Such close agreement with the clinical diagnoses would seem to indicate that the fixation test would again serve as a diagnostic aid.

The cases of degenerative arthritis form an important part of the control series because the majority of such individuals are past the age when active gonorrhea is usually encountered. The tests in this series, nineteen tests on the serums of eleven patients, were all negative.

Because of the supposed frequent association of a specific or a nonspecific prostatitis with spondylitis deformans,² it is interesting to note that fourteen of fifteen tests made on these nine male patients were negative.³ In this small series, three patients gave a history of gonorrhea eight, ten and thirteen years previously, but in each instance the onset of the spondylitis antedated the genital infection from one to four years. Only one of these three men still had a prostatitis (from which no gonococci could be isolated) at the time of entry to the hospital. The one man in whom a positive test occurred gave no history or other definite evidence of gonorrhea. In two other cases a nonspecific prostatitis was found.

Fifteen of sixteen tests in eight cases of gout were likewise negative, the one positive test being obtained in a woman with no changes suggestive of gonorrhea.

As can be seen from table 5, one may obtain varying results in the same individual. In this series, thirty out of 316 patients gave both positive and negative results. For instance, tests made on the serums of a woman with undoubted rheumatoid arthritis and in

whom no evidence of gonorrhea was ever demonstrable ran as follows: + ? — ? — ? + ? ? — — —. Similarly a series of tests taken in a case of gonorrheal arthritis were reported as — + — +. Such results indicate that, unless the test as used in this series is improved on, one cannot rely on the test in any single case, unless the clinical course of the arthritis in question is carefully evaluated. Further evidence that the gonococcus complement fixation method employed in this particular study is anything but 100 per cent diagnostic is well illustrated by the following case:

CASE 3.—A man, aged 38, was recently seen in consultation at another hospital. He gave a history of undoubted gonorrheal genital infection with frequent exacerbations of the genito-urinary symptoms. These genito-urinary exacerbations were always accompanied by widespread arthritis. When he was seen in the seventh week of his illness, it was found that the prostatic smears contained undoubted gonococci. Yet fixation tests done at weekly intervals for the preceding seven weeks had all been negative. Possible reasons for these variations and a discussion of certain technical considerations will follow.

The diagnostic significance of the test is further limited because of the occurrence of false positive reactions in the absence of gonorrheal arthritis. If the clinical course of each patient is not taken into consideration, calculations reveal that, given three positive tests, only two were correct, the third being a false positive reaction. However, such calculations exaggerate the significance of the false positive reactions, because if the clinical course of the arthritis is taken into consideration most of them will be found to be of no significance and in consequence will be eliminated. If the number of gonorrheal arthritic cases and those of nongonorrheal origin resembling gonorrheal arthritis are about equal, only one out of every ten positive tests will be misleading.

It is far better that the diagnostic error should be in this direction, because specific treatment such as properly supervised generalized diathermy will probably not do the patient in question any harm, whereas undue delay in a case of gonorrheal arthritis may allow for serious, irreparable damage to take place before the institution of such therapy.

COMMENT

The first requisite to a correct evaluation of the gonococcus complement fixation test as a diagnostic aid in the study of arthritic patients is that the cases so studied should be correctly diagnosed. In the present series every effort was made to meet this requirement by complying with the requirements set forth under Methods Employed in Studying Each Patient. In certain instances the final diagnosis was deferred until the course of the disease had been observed for one or more years. If, after such study and observation, there was any question as to the final diagnosis, the case was omitted from this series. (Three such cases were omitted; the tests in all were negative.) Therefore it is our belief that few if any errors in the interpretation of the value of this test as a diagnostic aid can be ascribed to mistaken diagnoses.

It is apparent from our results that even when the first requisite is met the gonococcus complement fixation reaction is not as specific a diagnostic test as the Wassermann reaction. From our experience with the test as carried out in this study, it is apparent that the test is not sufficiently perfect to eliminate nonspecific reactions. It would also seem that antibodies demonstrable by complement fixation may not appear in the blood stream in all cases. However, the chief

3. Tests on five additional patients (three males and two females) were also negative. Two of these five patients admitted having had a previous gonorrheal infection but not one of them had any evidence of such at the time they were examined. In both cases the spondylitis antedated the gonorrheal infection.

technical imperfections of the method employed are due to (1) the relatively large amount of antigen used, approaching more nearly the inhibitory dose than in the case of the Wassermann reaction, and (2) the differentiation between positive and negative reactions, which is not by complete hemolysis or by complete inhibition but is a difference in grades of inhibition. Because of these imperfections, one cannot expect to obtain as consistent results as in the case of the Wassermann reaction, and in consequence nonspecific reactions cannot be entirely eliminated.

It is often stated that a positive test is not obtained in men if the gonococcal infection is confined to the anterior urethra, or in women if the infection is limited to the urethra or vagina.⁴ Most workers are agreed that as complications develop the test becomes positive in an increasingly higher percentage of cases, reaching from 90 to 100 per cent in patients with a complicating arthritis.⁵ From our experience with the complement fixation test in gonorrheal arthritis it would seem necessary to modify the statement that the test is nearly 100 per cent positive in such instances. It is true that all patients in this series who had repeated fixation tests done on blood serums obtained during the time the arthritis was active gave at least one positive test (100 per cent positive). (Case 3 is not included in this series.) However, only 80.7 per cent of the proved cases of active gonorrheal arthritis gave positive tests at all times, and in the probable cases of active gonorrheal arthritis this figure fell to 63.6 per cent. As will be pointed out later, such results depend in part on when in the course of the disease the test was done. There exists considerable variation from case to case as to when the test becomes positive and again negative. In these two groups, 7.7 and 36.3 per cent respectively gave both positive and negative tests. Such results are not surprising when one learns that the clinical records in the later instances reveal that the majority of the negative tests were obtained early in the disease or as the arthritis became quiescent or cured.

The fact that negative tests are not infrequently obtained early in the disease allows one to ask: During what stage of the arthritis does the fixation test become positive? From previous reports it is obvious that antibodies do not accumulate in the blood in sufficient amount until the gonococcal infection has been present at least from ten days⁶ to four weeks. If the disease remains localized, even though it has become chronic, the test may never become positive.⁷ Such localized foci include the urethra, Bartholin's glands and the vagina. The majority of patients in our series did not come under observation until at least several weeks after the onset of the original infection. Furthermore, all our patients were suffering from at least one of the complications of gonorrhea, namely, arthritis, and, as we have already pointed out, the test becomes positive in an increasingly higher percentage of cases once metastasis and complications have resulted. However, one indi-

vidual had a positive test on the day of entry, eleven days after the onset of the arthritis. On the other hand, patients with gonorrheal arthritis entering the hospital five, eight, ten, eleven, sixteen and twenty-four weeks after the onset of the gonorrheal infection had negative fixation tests. In three such instances subsequent tests were done and were found to be positive.

From our experience as well as that of others⁸ it would seem fair to conclude that a persistently positive complement fixation test indicates that the gonococcal focus is still active. In such cases the fixation test may remain positive for months or years. Therefore it is not surprising that one encounters patients with a quiescent or a cured arthritis with serious genito-urinary infection persisting.

Although Osmond¹ and McNeil⁴ originally claimed that a positive test did not occur in a normal individual receiving a gonococcus vaccine, subsequent work⁹ has proved this statement to be incorrect. In fact, certain workers¹⁰ have obtained positive fixation tests in their control subjects by means of five small repeated doses or one large dose of a gonococcus vaccine. The blood serums of such patients may continue to give positive tests for as long as four months. Animal experiments¹¹ indicate that once antibodies are formed in sufficient amounts to give a positive test they may continue to be produced for some weeks after the organisms have disappeared from the circulation. Therefore it must follow that in certain instances of gonococcal infection with or without arthritis the fixation test may remain positive some weeks after a complete cure. None of the patients included in this series were treated with vaccine; therefore this factor cannot account for any of the positive reactions obtained. (In case 2, no fixation test was done after the vaccine was given.)

From the foregoing it is apparent that negative tests may be obtained in certain patients from five to twenty-four weeks after the initial infection, even though a complicating arthritis exists, thus indicating that in an occasional patient antibodies develop very slowly or that the number of organisms entering the system at any one time must not be sufficient in number to stimulate adequate antibody production. From the literature quoted it must also be apparent that a negative test will not be obtained until all antibodies in the blood have been eliminated, even though a complete cure of the original focus has been present for some weeks. Although a negative reaction in a case once positive is fair evidence of a cure, it may represent nothing more than adequate drainage of the original focus. If drainage is adequate, further metastases, necessary to the long continued production of antibodies, do not occur. In such instances a negative test probably means a good prognosis. In this series the appearance of negative reactions usually meant a cure of the arthritic process, and in some it also heralded the cure of the genito-urinary infection.

How is one to account for those cases of proved gonorrheal arthritis contained in this series exhibiting negative reactions? There were six such cases. They can be accounted for in one of several ways: 1. Sufficient tests may not have been done. 2. The tests may

4. Osmond.¹ Osmond and Oliver.² McNeil, A.: Present Status of the Complement Fixation Test in the Diagnosis of Gonorrheal Infections, *New York State J. Med.* **100**: 350, 1914. Green, F.: Serology in Arthritis, *Canad. M. A. J.* **17**: 907-911 (Aug.) 1927. Schwartz, H. J., and McNeil, A.: The Complement Fixation Test in the Diagnosis of Gonococcal Infections, *Am. J. M. Sc.* **141**: 693-709, 1911. Jeck, H. S.: Present-Day Treatment of Gonorrhea in the Male, *J. A. M. A.* **93**: 249-254 (July 27) 1929. Swan, C. S.: Results and Interpretation of a Complement Fixation Test for Gonorrhea, *New England J. Med.* **207**: 601-603 (Oct. 6) 1932.

5. Green.² Hoder.³ Osmond.¹ Osmond and Oliver.² Chwalla.¹ Budlovsky and Sagher.¹

6. Osmond.¹ Osmond and Oliver.² McNeil.⁴ Schwartz and McNeil.⁴ Lees, D.: Detoxicated Vaccines in the Treatment of Gonorrhea: Value of the Complement-Deviation Test in Controlling the Treatment and Estimating Its Therapeutic Effect, *Lancet* **1**: 1107-1111 (June 28) 1919.

7. Green.² Osmond.¹ Osmond and Oliver.² Schwartz and McNeil.⁴

8. Budlovsky and Sagher.¹ Schwartz and McNeil.⁴ Brunet, W. M., and Levine, B. S.: A Survey of 1,000 Gonococcus Complement-Fixation Tests Performed with the Serums of Male Patients in an Outpatient Clinic, *Am. J. Clin. Path.* **3**: 429-437 (Nov.) 1933. Fröhlich, H., and Jordan, P.: Persistierende Komplexbildung und Heilung der Gonorrhoe, *Arch. f. Dermat. u. Syph.* **105**: 542-551, 1932. Pelouze, P. S.: Gonococcal Urethritis in the Male, Philadelphia, W. B. Saunders Company, 1928, p. 160.

9. Chwalla.¹

10. Chwalla.¹ Pelouze.⁸

11. McNeil.⁴

have been done prior to the appearance of the antibodies (in four cases the tests were done on the first, second, fourth and sixth days of the arthritis) or after their disappearance (in two instances the tests were done two and two and one-half years after all joint symptoms had disappeared). 3. The antigen employed in doing our tests may not have been prepared from a sufficient number of the different strains. It will be remembered that our antigen was made from the four major Torrey strains, numbers 8, 15, 32 and 34.

What can be said concerning those cases of proved and probable gonorrheal arthritis which gave both positive and negative reactions? As stated before, most of the negative reactions were obtained early in the disease or as the arthritis became quiescent or cured. Those not explained in this way may represent the previously mentioned errors in the test. However, there were fifteen of the 175 cases of rheumatoid arthritis (8.6 per cent) which also exhibited both positive and negative reactions. Such positive reactions may all be instances of false positive reactions, representing the inevitable errors of the method employed. False positives have been reported by other workers, Chevall¹ obtaining 9.4 per cent in his control series. Some may represent tests done on serums from women in whom a gonococcic focus is often overlooked, even after careful examinations. Such an explanation may well account for the three cases of rheumatoid arthritis (1.9 per cent) which always gave positive reactions. It is interesting in this regard that the group of patients with degenerative arthritis (all being past the age when active gonorrheal infections are ordinarily encountered) all had uniformly negative reactions.

From these data it would seem reasonable to conclude that the gonococcus complement fixation test should be employed in a routine manner as a diagnostic aid in the study of patients suffering from arthritis. If one employs the test in the routine work up of a miscellaneous group of arthritic patients, the fact must be appreciated that if a positive reaction is obtained there is a 10 per cent chance of it representing a nonspecific reaction. The importance of the test lies in the fact that if it is positive it calls attention to the possibility of the arthritis being due to the gonococcus or strengthens a previous suspicion. Having obtained a positive reaction, one should reconsider the history and clinical course of the arthritis and determine whether or not they are consistent with such a diagnosis. In addition, one should make repeated attempts to demonstrate the existence of a gonococcic focus. However, one must realize that a negative reaction fails to rule out a gonorrheal infection in about 20 per cent of the cases. Undoubtedly better results than those recorded here will be obtained if all tests are made at the most favorable time during the course of the arthritis, but this is oftentimes impossible. An improved method would also allow for more accurate results. The weaknesses of the results obtained in our series should serve to stress the point that this laboratory test as employed is only an aid to a careful clinical study of the patient.

CONCLUSIONS

The results in 614 gonococcus complement fixation tests on the serums obtained from 316 patients with various types of arthritis indicate that the test is an important diagnostic aid in routine study of arthritic patients because:

1. Of 125 tests done on the serums from the seventy-four cases of proved or probable gonorrheal arthritis,

81.6 per cent gave positive reactions at some time during the course of the arthritis.

2. Of the tests done on the serums from the fifty-two proved cases of gonorrheal arthritis, 80.7 per cent gave positive reactions at all times.

3. Only 18.4 per cent of all the tests made in the seventy-four proved and probable cases of gonorrheal arthritis were negative.

4. Of 239 cases representing other types of arthritis, 91.6 per cent gave consistently negative reactions.

5. A positive reaction obtained in a case in which the history is not consistent with a diagnosis of gonorrheal arthritis is not significant. In cases in which the history is consistent with a diagnosis of gonorrheal arthritis, a positive test will be correct in 90 per cent of the cases. In about 20 per cent of the cases the reaction will be negative.

If the technical imperfection of the method employed can be improved, it is possible that the gonococcus complement fixation test will approach the Wassermann test in its degree of accuracy.

ORTHOSTATIC HYPOTENSION

THE TREATMENT OF TWO CASES WITH BENZEDRINE SULFATE

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AND

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PHILADELPHIA

Orthostatic hypotension is due to disturbance of function of the sympathetic nervous system. There is an absence of the reflex vasopressor and cardio-accelerator mechanisms necessary to maintain a blood pressure adequate for normal cerebral circulation when a person changes from a supine to an erect position.

Recently Chew, Allen and Barker¹ reviewed the literature on orthostatic hypotension and added six cases. They have carefully analyzed the numerous symptoms and signs exhibited by these people. Syncope and weakness are the most common symptoms dependent on the sudden fall in systolic and diastolic blood pressures when the patient stands. Among the other symptoms listed may be mentioned (1) failure of an increase in the pulse rate when a patient stands, (2) decrease or absence of sweating, (3) loss of libido, (4) pallor, (5) relatively high blood urea and (6) lowered basal metabolic rate.

These authors offer evidence to show that this condition is not due to faulty functioning of the entire autonomic nervous system but to some local disturbance in the peripheral sympathetic nervous supply to the vessels and the sweat glands. They have observed phenomena identical with those seen in orthostatic hypotension after resection of the anterior roots, splanchnic nerves and the lumbar and celiac ganglions.

The purpose of reporting two cases of orthostatic hypotension is to record the results obtained with benzedrine sulfate by mouth.

CASE 1.—A. L., a white man, aged 38, for the past few years had complained of spells of weakness, lightheadedness, blurring of vision and lack of pep. The spells seemed to be most severe while working. His work was of the type necessitating frequent changes in posture and a constant exposure to rather

1. Chew, E. M.; Allen, E. V., and Barker, N. W.: Orthostatic Hypotension: Report of Six Cases and a Review of the Literature, *Northwest Med.* 35: 297-303 (Aug.) 1936.

high temperatures. On one occasion vertigo, nausea and sudden unconsciousness followed a precipitate rise to an erect posture. It was the only severe attack he had had. His wife told him that he appeared as "pale as a ghost." This attack prompted him to seek medical aid. He said that while he worked he rarely perspired but that when he entered cooler surroundings he would perspire as though one had suddenly turned on all the "sweat spigots" at once. Usually after these spells of profuse perspiration he would feel weak. There was no history of tetany. His salt intake was not increased.

The patient was extremely well proportioned, with a height of 71 inches (177.5 cm.) and a weight of 170 pounds (77 Kg.). His skin was extremely dry. Carotid sinus pressure on either side when the patient was in the recumbent or sitting position was unsuccessful in duplicating the symptoms of which he complained. With the exception of the variability observed in the blood pressures and pulse rates (table 1) the physical and neurologic examination proved normal. The laboratory data,

TABLE 1.—Blood Pressure and Pulse Rate in Case 1 Before and After Benzedrine Sulfate

	Blood Pressure in Mm. of Mercury						Pulse Rate per Minute		
	Supine		Sitting		Standing		Supine	Sitting	Standing
	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic			
First examination.....	110	72	90	58	64	10	58	65	84
After sodium chloride...	112	72	86	58	66	20	56	70	85
After benzedrine sulfate.	126	76	102	66	82	48	63	78	90

TABLE 2.—Blood Pressure and Pulse Rate in Case 2 Before and After Benzedrine Sulfate

	Blood Pressure in Mm. of Mercury						Pulse Rate per Minute		
	Supine		Sitting		Standing		Supine	Sitting	Standing
	Systolic	Diastolic	Systolic	Diastolic	Systolic	Diastolic			
First examination.....	96	60	88	58	55	?	68	69	80
After sodium chloride...	100	68	85	58	54	10?	66	74	85
After benzedrine sulfate.	126	74	102	64	83	40	96	93	100

including erythrocyte and leukocyte counts, hemoglobin estimation, flocculation test for syphilis, blood chemistry and urinalysis, were within normal limits. A roentgen study of the chest was reported as normal.

The patient was given 10 Gm. (150 grains) of sodium chloride daily in keratin-coated tablets of 15 grains each. One week later the blood pressure and pulse rate were recorded as previously. Although the patient said he felt improved, no appreciable alteration of the blood pressure was noted.

For the next twelve days, in addition to the sodium chloride, the patient was given 20 mg. of benzedrine sulfate half an hour before rising in the morning and 15 mg. at lunch time. When he reported for observation he stated that he had never felt better and that except for the paradoxical sweating, which was less severe, all symptoms had disappeared. The blood pressure continued to fall when he assumed the erect posture but not to the levels observed before benzedrine sulfate was instituted. In the blood pressure recorded in the recumbent posture there was noted only a slight increase above that recorded previous to the benzedrine sulfate therapy.

In a recent communication the patient states that he has increased the dose. He has found that by taking two 10 mg. tablets at 4 o'clock in addition to the previous doses he feels more comfortable.

CASE 2.—J. L., a white man, aged 40, complained of profound weakness, dizziness, lightheadedness, staggering, dry skin and pallor. He was worried because he had been told that he had a "hidden" cancer. He had been physically tired for the past seven years and profoundly weak for the past eighteen months. There had been no increase in his desire for salt; in fact, he

used less than other members of the family. He stated that he always felt better during the winters; the summer heat seeming to make him worse. He said that he did not perspire very much generally but that his feet were always damp. He rested a great deal of the time because he felt better while recumbent. When he arose and walked around he felt lightheaded and noticed blurring of vision and staggering. He had been troubled with severe constipation all his life. As far as could be determined, a history of the various systems was negative.

The patient was 67 inches (167.5 cm.) tall and weighed 155 pounds (70 Kg.). There was no evidence pointing to myasthenia gravis or Addison's disease. The physical and neurologic examinations were negative except for a variation in the blood pressures and pulse rate on changes in posture (table 2). On two successive tests the basal metabolic rates were recorded minus 16 and minus 10. Other laboratory data, including the Kolmer-Wassermann test, urinalysis, gastric analysis and blood chemistry, were within normal limits. Examination of the blood revealed 4,010,000 erythrocytes per cubic millimeter, 6,240 leukocytes with a hemoglobin estimation of 68 per cent (Dare) and a hypochromic normocytic anemia. Roentgen study of the gastro-intestinal tract was negative except for deep haustrations and a smaller lumen than normal throughout the entire colon.

The patient was placed on sodium chloride in a manner similar to the preceding case. When he was examined ten days later he appeared to be improved. He said that he did not feel as chronically tired as he had, but when he arose quickly or tried to work hard faintness and blurring of vision were about the same. There was no evidence of improvement from the standpoint of more stability in the blood pressure on changes in posture.

For the next eight days benzedrine sulfate in dosage of 25 mg. one-half hour before rising and 15 mg. at lunch time was administered. When he reported back for observation he appeared more alert and stated that his symptoms, although present, were extremely mild and did not inconvenience him in any way. He also stated that constipation no longer bothered him. The blood pressure had increased in the recumbent position and although there was a drop in the pressures when he assumed the erect posture, it did not drop to the level previously recorded.

January 25 I reexamined the patient. The morning dose was increased to 40 mg., the noon dose remains as previously recorded, and it has been necessary to give 15 mg. at 3 o'clock. He was examined February 1 at 5 o'clock. The blood pressure and pulse rate did not seem to vary particularly from those previously recorded, with the exception that the supine blood pressure was 142 systolic, 80 diastolic.

COMMENT

Peoples and Guttman² used benzedrine sulfate in twenty-five cases, obtaining an average of 24 mm. of mercury increase in blood pressure. Tovell,³ in a preliminary report, has used benzedrine to control blood pressure during spinal anesthesia in thirty-one cases with the benefit of a variable degree in all but three cases. Long⁴ recently stated that as a vasoconstrictor benzedrine has an unusually long duration of action. The effects of the drug are regular and constant and are characterized by an increase in pulse amplitude and occasionally in pulse rate. Benzedrine is supposed to have a more gradual action, a more sustained pressor effect, and to dissipate its influence more slowly than other sympathomimetic drugs. Similar pressor effects have been observed in a small percentage of cases of postencephalitis in which the results of benzedrine sulfate therapy are being studied.⁵

2. Peoples, S. A., and Guttman, E.: Hypertension Produced with Benzedrine, *Lancet* 1:1107-1109 (May 16) 1936.
3. Tovell, R. M.: Control of Blood Pressure During Spinal Anesthesia: Preliminary Report, *Proc. Staff Meet., Mayo Clin.* 2:585-589 (Sept. 9) 1936.
4. Long, William: The Sympathomimetic Amines, paper read to Section on Psychiatry, Philadelphia College of Physicians, Oct. 9, 1936.
5. Stewart, Winifred, and Davis, P. L.: Work in Progress at Philadelphia General Hospital, to be reported when completed.

Sodium chloride was used empirically in these cases because of the possible influence on the metabolic activity of the adrenal gland. Benzedrine sulfate (phenyl isopropylamine sulfate), a newly developed sympathomimetic drug, is recommended for further investigation in orthostatic hypotension.

SUMMARY

In two cases of orthostatic hypotension, benzedrine sulfate relieved the symptoms of orthostatic hypotension by preventing the fall of blood pressure to the level at which symptoms occurred.

1737 Chestnut Street.

REACTION OF THE BLOOD PRESSURE
OF 400 SCHOOL CHILDREN TO
A STANDARD STIMULUS

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The systemic blood pressure reacts to various forms of external and internal stimulation; consequently, it is subject to considerable variation. This reactivity of the blood pressure can be measured by a standard test in which local cold is used as the stimulus.¹

Excessive variability of the blood pressure may have important significance even though the blood pressure is below accepted maximal levels. Recent studies have indicated that vasomotor reactions, as measured by responses in blood pressure, may be hereditary and that an excessive generalized vasoconstrictor response to stimulation is indicative of a prehypertensive state.¹

Many statistical studies on the blood pressure of children have been carried out in which the usual methods of measuring the levels of blood pressure have

bility of the blood pressure as well as the actual pressure at any given time. Partly as an independent study, therefore, and partly for correlation with a similar study of adults which I am making, I have measured the blood pressure reactions of a group of children to a standard stimulus. As far as I know, such a study has not been made before.

TECHNIC OF TEST

The subject is allowed to rest in a supine position in a quiet room for thirty minutes. During this rest period several readings of the blood pressure are taken until a basal level has been approximated. With the cuff of the sphygmomanometer on one arm, the opposite hand is placed in ice water at 4 C. to a point just above the wrist. Readings of the blood pressure are taken at the end of thirty seconds and again at the end of sixty seconds. The maximal reading obtained while the hand is in the ice water is taken as the index of the response. The hand is removed from the ice water, and readings are then taken every two minutes until the blood pressure returns to its previous basal level. The maximal response frequently occurs within thirty seconds. The blood pressure of subjects with normal levels of blood pressure returns to the basal level within two minutes. On the basis of previous studies, a maximal rise of more than 22 mm. of mercury in systolic pressure and 18 mm. in diastolic pressure was interpreted as being a hyperreactive type of response.

These studies of blood pressure were carried out by testing the children in pairs. Two comfortable beds were placed in a quiet room for the children to lie on. The test was then performed. A standard mercury manometer with a 10 cm. cuff was used to measure blood pressure. Significant emotional disturbances were seldom noted and readings could be made satisfactorily on children as young as 6 years of age. The

Blood Pressure Response of 400 School Children to Cold Pressor Test

Age, Years	Average Increase in Blood Pressure, Mm. of Mercury										
	Entire Group			Normal Reactors				Hyperreactors			
	Number	Systolic	Diastolic	Number	Systolic	Number	Diastolic	Number	Systolic	Number	Diastolic
6-7.9.....	53	15.2	18.8	44	11.5	42	14.8	9	30.7	11	49.0
8-9.9.....	75	17.4	20.2	62	12.8	51	15.0	13	35.7	24	31.8
10-11.9.....	84	18.2	21.2	68	12.7	53	13.3	16	34.5	31	33.6
12-13.9.....	94	17.6	20.1	75	12.2	65	14.6	19	33.1	29	31.4
14-15.9.....	46	12.3	19.5	37	8.1	35	12.2	9	34.0	11	34.4
16-18.0.....	48	15.3	14.7	40	11.1	41	12.1	8	33.0	7	30.7
	400	16.2	18.3	326	12.6	287	14.0	74	33.8	113	33.8
		± 0.34*	± 0.35*		± 0.15*		± 0.16*		± 0.37*		± 0.51*

* Mean increase for group.

been applied.² There has been considerable disagreement in some of the data obtained by the different investigators. It was felt that some of these differences could be explained on a basis of the latent variability of the blood pressure. Merely to have the blood pressure taken may be a sufficient stimulus to bring it to a maximal level, but since the rise will be maximal in some instances and partial in others the results will not be comparable. For this reason it was believed that it would be of importance to study the range of varia-

test was repeated on forty of the children after a three months interval and no significant variation from the previous test figures was noted.

DATA

The 400 school children whose blood pressures were studied were between the ages of 6 and 19 years; 192 of them were girls, 208 were boys. A summary of the data according to age is presented in the accompanying table. In the group with "normal" (minimal) responses the mean increase was 12.6 ± 0.15 mm. of mercury for the systolic and 14.0 ± 0.16 mm. for the diastolic pressure. In the hyperreactive group the mean rise in blood pressure was 33.8 ± 0.37 mm. for the systolic and 33.8 ± 0.51 mm. for the diastolic pressure. Eighteen per cent of the children had hyperreactions in the systolic and diastolic pressures. There was a much greater lability in the diastolic blood pressure in this group

From the Division of Medicine, the Mayo Clinic.
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2. Stocks, Percy, and Karn, M. N.: Blood Pressure in Early Life: A Statistical Study, Cambridge, University Press, 1924. Abt, A. F., and Feingold, B. F.: Blood Pressure in Infancy and in Childhood: A Review of the Literature on the Determination of Blood Pressure in Normal and in Pathologic Conditions, *Am. J. Dis. Child.* 40: 1285-1311 (Dec.) 1930.

of children than was noted previously in adults. In many instances the diastolic "range" was equal to or greater than the systolic. This was especially true through puberty up to the age of 16 years, after which there was a decrease in the mean diastolic range. The mean systolic range increased up to the age of 14 years and was then followed by a slight decrease. It is significant that although there was a definite increase in the mean reaction with age there was no significant change in the incidence of hyperreactors in the different age groups. There was no correlation between the responses to the test and the height and weight.

Six pairs of identical twins were tested. The basal readings and responses to the test were almost identical in each pair. In one pair the blood pressure rose from a basal level of 110 systolic and 65 diastolic to 160 systolic and 100 diastolic in one twin, and in the other from 112 systolic and 68 diastolic to 155 systolic and 100 diastolic.

A definite familial trend was noted as the children were grouped into families. The families with the larger number of children were subjected to a more extensive study to determine the significance of the hereditary factor. The result of this study has been reported elsewhere.³

The occurrence of hypertension in the group could not be determined definitely. There is no satisfactory criterion for determining the levels at which hypertension may be said to be present in children.⁴ Only four of the children had blood pressures above the accepted maximal levels for adults; namely, 150 mm. of mercury systolic and 90 mm. diastolic. All of them gave abnormal reactions to the test. Fourteen had blood pressures greater than 140 mm. of mercury systolic and 80 mm. diastolic, and eleven of these were hyperreactors.

In ten of the children there was a very high maximal response to the test. The lowest response to the test was to 170 systolic and 110 mm. diastolic, the highest to 190 systolic and 130 mm. diastolic. There was no history of previous nephritis or evidence of organic heart disease in any of these children.

COMMENT

This study reveals hyperreaction of the blood pressure to a standard stimulus in children as young as 6 years of age. An experiment is being made to determine whether the incidence of hyperreactors in this group of children correlates with the combined incidence of hypertension and hyperreactors among adults.

There was a definite increase in the mean blood pressure reactions in the prepuberty and puberty age groups. This agrees with other studies on levels of blood pressure.

SUMMARY AND CONCLUSIONS

A study of the blood pressure reactions to a standard stimulus of 400 school children revealed that 18 per cent of them were hyperreactive in respect to systolic and diastolic blood pressure. The reaction of the blood pressure increases during the prepuberty and puberty period, but the incidence of hyperreactors was found to be approximately the same in the different age groups. The reaction of the diastolic blood pressure is much greater in children than in adults.

3. Hines, F. A., Jr., and Brown, G. E.: The Hereditary Factor in the Reaction of Blood Pressure to a Standard Stimulus (Cold): Preliminary Report, *Proc. Staff Meet., Mayo Clin.* 10: 371-373 (June 12) 1935.
4. Allen, E. V., and Alvarez, W. C.: Normal Blood Pressure and Its Physiologic Variations, in *Sajous: Cyclopedia of Medicine*, New York, F. A. Davis Company, 1931, pp. 367-381.

PROTAMINE INSULIN IN JUVENILE DIABETES

CLINICAL OBSERVATIONS

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The number of published reports on the chemistry, character and clinical observations of protamine insulin are already becoming voluminous. The claims made for this combination by its discoverers,¹ namely, that protamine insulin offers a prolonged pharmacologic action with comparative freedom from hypoglycemic reactions and a subsequent diminution in the number of daily injections required for diabetic control, have been fully confirmed by investigators on this continent.² Scott,³ Fisher and Rabinowitch⁴ have recently demonstrated that the addition of zinc to protamine insulin produces an even more prolonged action of the combination on the blood sugar content of both diabetic and nondiabetic subjects and it is suggested by Rabinowitch⁴ that the addition of zinc to the protamine insulin increases the sensitivity of the individual to the injected insulin; he has also demonstrated that the addition of zinc to crystalline and even to the regular commercial insulin produces a more prolonged pharmacologic action. While calcium has been employed also as a stabilizing factor in the formation of the protamine insulin complex, it would appear in the light of current investigation that zinc will be the element of scientific choice for this rôle in the future. The present discussion will attempt only to set forth our clinical observations on the use of protamine insulin as contrasted to regular commercial insulin.

This study, commenced early in July 1936, is based on the observations of ten juvenile diabetic patients who were carefully selected with regard to the following qualifications: (1) a juvenile diabetic patient (under 21 years of age); (2) an intelligent and cooperative subject; (3) an uncomplicated case (where possible); (4) a patient requiring insulin for diabetic control. As will be seen from the records summarized herein, most of these patients present relatively severe diabetes mellitus. The results have been most encouraging. Contrary to the rather general written opinion that protamine insulin should be used initially only under hospital observation,⁵ it has been found that hospitalization is not essential in shifting patients from

Helpful cooperation in this work was given by Dr. C. B. F. Gibbs. The protamine insulin used in this study was supplied through the generosity of Eli Lilly & Co. and E. R. Squibb & Sons.

From the Medical Department of the University of Rochester School of Medicine and the Medical Clinic of Strong Memorial and Rochester Municipal Hospitals and the Rochester General Hospital.

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2. Root, H. F.; White, Priscilla; Marble, Alexander, and Stotz, E. H.: Clinical Experience with Protamine Insulin, *J. A. M. A.* 106: 167 (Jan. 18) 1936. Joslin, E. P.; Root, H. F.; Marble, Alexander; White, Priscilla; Joslin, A. P., and Lynch, G. W.: Protamine Insulin, *New England J. Med.* 214: 1079 (May 28) 1936. Sprague, R. G.; Blum, B. B.; Osterberg, A. E.; Kepler, E. J., and Wilder, R. M.: Clinical Observations with Insulin Protamine Compound, *J. A. M. A.* 106: 1701 (May 16) 1936. Rabinowitch, I. M.; Fowler, A. F., and Corcoran, A. C.: Observations on the Action of Protamine and Insulin and Its Use with the High Carbohydrate-Low Calory Diet in the Treatment of Diabetes Mellitus, *Canad. M. A. J.* 35: 124 (Aug.) 1936.

3. Scott, D. A., and Fraser, A. M.: The Prolongation of Insulin Action by Protamine and Zinc, *Proc. Am. Soc. Biol. Chem.* 8: lxxviii, 1936.

4. Rabinowitch, I. M.; Foster, J. S.; Fowler, A. F., and Corcoran, A. C.: Clinical Experiences with Protamine-Zinc-Insulin and Other Mixtures of Zinc and Insulin in Diabetes Mellitus, *Canad. M. A. J.* 35: 239 (Sept.) 1936.

5. Root, White, Marble and Stotz.² Joslin, Root, Marble, White, Joslin and Lynch.² Sprague, Blum, Osterberg, Kepler and Wilder.²

regular insulin to protamine insulin, but it is my opinion that hospital study during this transition greatly facilitates and shortens the period of "semicontrol" that may be expected. In this series, four of the ten patients were hospitalized, cases 7, 8, 9 and 10, but it is felt that cases 7 and 8 might have been very satisfactorily shifted to protamine insulin without such close study, although certainly a much more accurate and definite picture and hence a greater feeling of relief for the physician is available through hospitalization.

TIME OF INJECTION OF INSULIN

In view of the fact that the patients to be studied were juveniles and most of them were of school age, it was felt that before breakfast was the ideal time for the administration of protamine insulin. The observations of Sprague, Blum and their associates² were a great help in making this choice of time. Consequently, it was arbitrarily decided to give all insulin before breakfast, the protamine insulin being given one hour before breakfast and any required supplemental dose of regular insulin being given the usual twenty minutes before breakfast. Subsequent observations and reflections on the definitely prolonged action of protamine insulin have led to the opinion that it may be given at any time before breakfast, as its effect obviously persists at least twenty-four hours; but it is felt that whether the time is one hour before breakfast or twenty minutes before breakfast it is best to employ the same time each day.

Until early September six of the patients were taking varying supplemental doses of regular insulin, but this inconvenience has apparently been overcome so that none of our ten cases at present require such. It has been our observation that the period of highest blood sugar level and subsequently greatest glycosuria is after breakfast under protamine insulin routine, and such condition can be readily controlled by supplying the required dosage of supplemental regular insulin before breakfast.

ESTIMATING THE DOSE

The plan followed with each individual case at the institution of protamine insulin has been to give an amount of this substance equal to the combined number of units of regular insulin previously required over a twenty-four hour period. While in several of these cases the insulin requirements have apparently been heavier under the new regimen than under the old, it was quite obvious that many of these patients never represented twenty-four hour daily control of their diabetes in the past. In short, although they were progressing with relatively smaller doses (twenty-four hours) of insulin they were never theoretically perfectly controlled diabetic patients, and when one considers the potential complications of the disease it is easier to appreciate the tremendous advantage to be gained in employing the new insulin especially in juvenile diabetes.

In general, it is my opinion that ample doses of protamine insulin should be given initially, i. e., when the patient is transferred from the old insulin to the new, and that the dose may be reduced if necessary. Such a procedure tends to eliminate the prolonged period of "transitional glycosuria" which has been so frequently observed when apprehension concerning the early giving of massive doses exists. The relative rarity of insulin reactions with protamine insulin allows one to assume this attitude when instituting the new insulin.

DIET

Dietary regulation in the ten cases studied has been essentially an individual factor. It was felt that although from a theoretical point of view giving but 20 per cent of the daily carbohydrate intake at breakfast would tend to less need for supplemental doses of regular insulin, on the other hand, the natural desire and need of a school child for an ample breakfast was considered and it was decided to continue the diets as they were; that is, roughly one third of the daily carbohydrate being given at each meal. As this study has progressed, a general gradual shift in all diets toward the high carbohydrate-low calory type is being achieved and it would seem that protamine insulin is highly efficacious under such a dietary regimen.

REACTIONS

Insulin reactions under protamine insulin have been characterized by their rarity and usually mild symptomatology, but there is a definite tendency for their onset to be most insidious. Four of our patients have experienced hypoglycemic reactions during this study, but the only severe reaction observed occurred in case 6 and is described in the history. Although "unconsciousness" occurred, the attack quickly passed off following the taking of orange juice; obviously the patient was not unconscious but appeared so to a fond parent. There have been no recurrences in this case. It is interesting to note that the blood sugar in case 9 reached a low ebb of 45 mg. without producing symptoms of hypoglycemia except for rather ravenous hunger. Also, case 4 presented a known blood sugar of 37 mg. on one occasion without symptoms of hypoglycemia. In case 5 the only reactions recorded occurred in midafternoon while the patient was taking a supplemental dose of regular insulin to control after breakfast glycosuria; there have been no recurrences in this case since the abolition of regular insulin.

SUBJECTIVE IMPROVEMENT

Without exception, the ten patients studied in this series have remarked on how much better they feel under the new regimen of insulin administration. It has not been necessary to interrogate the patients on this point, as they have all voluntarily expressed enthusiasm for what they feel to be a new era in their existence. While some of the enthusiasm might be explained on the basis of the greater convenience to the patients, in that they may lay aside their insulin syringes before breakfast for the ensuing twenty-four hours, several have voiced the opinion that they feel they are more like "normal human beings." Parents of the juveniles have also been most enthusiastic, especially the parents of patient 10, who said that their son was "the best they have seen him in six years." Many of these patients have noticed a definite increase in appetite under protamine insulin, and the high carbohydrate-low calory diet should be a welcome solution of this problem.

CASE HISTORIES

The following summaries are presented to give in condensed form the brief past history and essential picture of these patients under protamine insulin. All superfluous details have been omitted, but it is hoped that a fairly comprehensive picture is obtainable of the individual results in this study.

CASE 1.—*History*.—T. L. V., a white girl, aged 7½ years, first developed symptoms of diabetes in April 1936. Polyuria, polydipsia and polyphagia increased and during the last three weeks

of July there was a loss of 3 pounds (1,360 Gm.). The onset of the illness had been insidious with no preceding infection, and there was no familial history of diabetes mellitus. Physical examination when first seen July 29 was essentially negative except for some undernutrition. The weight at that time was 38 pounds (17.2 Kg.) and the urine showed a 4 plus Benedict reaction and 2 plus acetone. The fasting blood sugar then was 186 mg.

The patient was put on a diet of 1,800 calories (protein 70 Gm., fat 90 Gm., carbohydrate 180 Gm.), and insulin 10-0-10 was instituted. August 1, fasting blood sugar was 263 mg. and insulin was raised to 15-0-10. August 6, the weight was 39 $\frac{3}{10}$ pounds (18 Kg.) and because of rather persistent glycosuria regular insulin was again increased to 15-0-15 with an increase in diet to 1,972 calories (protein 73 Gm., fat 96 Gm., carbohydrate 204 Gm.). August 12 the weight was 40 $\frac{1}{2}$ pounds (18.4 Kg.) and the insulin requirement was 17-0-15, and occasional glycosuria was still present during the day.

Protamine Insulin Record.—Protamine insulin was instituted August 17, with a dosage of 25 units given one hour before breakfast. During the period from August 17 to August 21 there was occasional 1 plus glycosuria during the day but by August 23 the urine had become completely sugar free for twenty-four hours and continued to be so. August 26 there was a moderately severe insulin reaction occurring at noon, which was characterized by an insidious onset but was relieved by the oral administration of dextrose. The protamine insulin dosage was subsequently reduced to 15 units. Under this routine the patient continued to be essentially sugar free, showing on occasion a 1 plus glycosuria. September 1 protamine insulin dosage was reduced to 10 units and the child continued to show only an occasional 1 plus sugar reaction. September 11 the protamine insulin dosage was reduced to 9 units and on September 19 to 8 units, at which level it has remained until the present time. The weight, September 19, was 42 $\frac{3}{10}$ pounds (19.2 Kg.), and the fasting blood sugar on that day (taken one hour after 8 units of protamine insulin had been given) was 72 mg. The patient has continued to be essentially sugar free under what may be considered a comparatively minimal dose of protamine insulin. Whereas prior to the institution of protamine insulin she required 32 units of regular insulin she now requires one fourth such dose in protamine insulin and is in all respects a perfectly controlled juvenile diabetic patient. The parents are most enthusiastic over protamine insulin and no supplemental dose of regular insulin has ever been necessary. The convenience of administration of protamine insulin makes itself more obvious in a patient of this age, in which a marked fear of hypodermic injection is generally the rule and multiple injections present quite a problem to the parents.⁶

CASE 2.—History.—R. L., a white girl, aged 14, has always been thin and undernourished in appearance, presenting in many ways the cardinal aspects of the asthenic diathesis. Diabetes mellitus was first diagnosed in 1926 at the age of 4 years, at which time a history was obtained of one year of polyuria and nocturia. During the past ten years there have been three hospital admissions to the Rochester General Hospital for the control of her diabetes. The patient has been on regular insulin since 1927, her insulin "requirements" varying from 5-3-3 to 10-0-10. Briefly summarized, her diabetic history has been one of almost persistent glycosuria and high blood sugar levels after eating, all values approximately between 250 to 300 mg. For the past year the diet had been approximately 2,000 calories (protein 80 Gm., fat 112 Gm., carbohydrate 170 Gm.) but no marked gain in weight had occurred.

Protamine Insulin Record.—Protamine insulin was instituted Aug. 13, 1936, the initial dose being 12 units taken the usual one hour before breakfast, the patient being instructed to raise the insulin to make herself sugar free in the fasting morning specimen. The blood sugar three hours after eating following 10 units of regular insulin was 290 mg. and the fasting urine 1 plus and the urine three hours after eating 3 plus, the patient having been on insulin 10-0-10. The weight August 13 was 62 pounds (28 Kg.). August 20 she was taking protamine insulin 17 units and regular insulin 5 units (twenty minutes before breakfast). Fasting urines were 1 plus, urines one hour after breakfast were negative, occasional glycosuria being evidenced at other times during the day. The blood sugar after meals was 334 mg. The patient was instructed to increase the

protamine insulin. August 27 the patient stated that she was taking 18 units of protamine insulin and did not require regular insulin. Fasting urines had been negative. A urine specimen taken two hours after eating was 3 plus and blood sugar two hours after eating was 512 mg. September 3 she was taking protamine insulin 20 units and regular insulin 5 units, and all fasting urines were negative. Two hours after breakfast the urine was 3 plus and the blood sugar 350 mg. September 11 the patient was on the same insulin dosage as September 3, although she had been instructed to increase the protamine insulin to 25 units and the supplemental dosage of regular insulin as required. Fasting urines were all negative, but two and one-half hours after breakfast the urine was 1 plus and blood sugar 234 mg. September 17 the weight was 64 $\frac{1}{2}$ pounds (29.3 Kg.). She had been taking protamine insulin 25 units and no regular insulin, was sugar free twenty-four hours a day, and the blood sugar two hours after breakfast was 151 mg.

Since January 1936 the patient has been receiving 2.5 cc. of a commercial preparation of the pituitary growth hormone (antuitrin-G) weekly; her height in January 1936 was 57 inches (145 cm.) and her present height is 59 inches (150 cm.).

It would appear that this child's diabetes is under perfect control on 25 units of protamine insulin. She states that she feels very well, is gaining weight, has experienced no insulin reactions and is most appreciative of the fact that she is finished with the hypodermic injection of her insulin before breakfast. The difficulty experienced in this case was attempting to get the patient to elevate her single injection of protamine insulin to her proper maintenance dose by herself.

CASE 3.—History.—T. C., a white youth aged 16, had a sudden acute onset of diabetes mellitus about January 1936. He was in Strong Memorial Hospital from January 28 to February 11, for control of his diabetes, and persistently high blood sugars were the rule while in the hospital. His diet since that time has been protein 90 Gm., fat 110 Gm. and carbohydrate 210 Gm.

The patient was followed in the diabetic clinic of Strong Memorial Hospital after February 1936, and his insulin requirements until June were 20-0-10-5 (the five units being given at midnight). In June the insulin was changed to 20-0-15. The after-meal blood sugars under the 20-0-10-5 routine varied between 100 and 170 mg. while the after-meal blood sugars (morning) under the 20-0-15 routine varied between 204 and 258 mg. After June the patient usually evidenced glycosuria before breakfast, but when he had been taking 5 units of insulin at midnight he was sugar free in the fasting urine specimen.

Protamine Insulin Record.—Protamine insulin was instituted July 14, at which date his weight was 120 pounds (54.4 Kg.). He was put on protamine insulin 30 units with no supplemental regular insulin. On July 21 protamine insulin was continued at 30 units and 5 units of regular insulin recommended because of considerable after breakfast glycosuria. On this date the after-meal blood sugar was 244 mg. July 28 the weight was 118 pounds (53.5 Kg.) on 35 units of protamine insulin and 8 units of regular insulin and there was still considerable after-breakfast glycosuria, but fasting urines were negative. The blood sugar after meals was 276 mg. August 4, the weight was 116 (52.6 Kg.) and he was taking protamine insulin 35 units and no regular insulin, with occasional 1 plus glycosuria after breakfast. The blood sugar after meals was 282 mg. August 18, the weight was still 116 pounds, and he was taking protamine insulin 40 units and regular insulin 5 units and stated that after-breakfast glycosuria persisted. The blood sugar after meals was 310 mg. (At this time the patient had a slight infection in his left index finger). August 25, the weight was 117 pounds (53 Kg.) and he was taking protamine insulin 42 units and regular insulin 5 units. The urines were now essentially negative. The blood sugar after eating was 235 mg. September 8, the weight was 118 pounds on 45 units of protamine insulin and 8 units of regular insulin. At this time the patient had a slight head cold and all urines had been 1 plus. September 22 the weight was 120 pounds (54.4 Kg.) and he was taking protamine insulin 45 units with no supplemental regular insulin, and he was sugar free twenty-four hours a day.

The patient has been on a diet of protein 100 Gm., fat 100 Gm., carbohydrate 175 Gm. since the institution of protamine insulin. He stated that he felt fine and that there had been no insulin reactions, but it was difficult to get him to elevate his

6. This case is presented through the courtesy of Dr. Einar Lie.

insulin to the proper maintenance level. He has gained only 1 pound (453 Gm.), but it must be remembered that the diabetes was reasonably well controlled under regular insulin before protamine insulin was instituted. It is also interesting to note that the infection of the upper respiratory tract of September 8 produced no evidence of acidosis, nor did it set him back in his progress.

CASE 4.—History.—T. L., a white youth aged 19, intelligent and cooperative, had diabetes which was first diagnosed in 1930 at the age of 13. Between 1930 and 1932 there were four admissions to the Strong Memorial Hospital, during which time the patient had an acute glomerular nephritis and a phrenicotomy for bronchiectasis, which was done in June 1931 with marked relief of symptoms of this disease. He had had occasional chest colds since, which always necessitated marked additional amounts of regular insulin and were usually accompanied by mild acidosis. The patient had required insulin since the onset of diabetes in 1930, the dosage in 1931 being approximately 10-0-10 during health but rising to as much as 100 units a day in divided dosages when infection was present. During 1933 the insulin requirements varied from 40 to 55 units per day in divided doses. During 1934 and 1935 there were no severe respiratory infections and the average insulin requirements were 35-0-20. Postprandial blood sugars between 1931 and 1935 varied between 200 and 300 mg. His weight in 1931 was 97 pounds (44 Kg.), in 1932 112 pounds (51 Kg.), in 1933 130 pounds (59 Kg.), in 1934 138 pounds (62.6 Kg.) and in 1935 150 pounds (68 Kg.).

Protamine Insulin Record.—July 15, 1936, protamine insulin was instituted. On July 14 the four hour postprandial blood sugar after 35 units of regular insulin was 228 mg. At this time the patient was showing a 1 to 2 plus glycosuria in the before breakfast specimen and had been taking regular insulin 35-0-20. His weight July 14 was 166 pounds (75 Kg.). He was started on 45 units of protamine insulin taken one hour before breakfast with no other insulin and was instructed to increase the protamine insulin as required and to supplement with regular insulin if necessary. He returned to the clinic July 28, at which time he was taking protamine insulin 55 units and regular insulin 10 units before breakfast and was usually sugar free in the specimen before breakfast. The two and one-half-hour blood sugar after eating was 222 mg. and the weight was 171 pounds (78 Kg.). August 18 he was taking protamine insulin 60 units and regular insulin 10 units. The patient stated that he occasionally had a faint trace of sugar in the before breakfast specimen but was sugar free the rest of the time. The blood sugar taken on this date after eating was 37 mg. and there were definitely no symptoms of insulin reaction. His weight was 175 pounds (79 Kg.). He was advised to discontinue regular insulin and to continue on the same dose of protamine insulin. He continued to feel well; there were no insulin reactions and he was sugar free at all times until early in September, when a severe respiratory infection developed that was characterized by fever of moderate degree and a very productive cough. He received no professional attention during this illness, which persisted for two weeks. He stated that he took only one half of his regular diet, which was protein 100 Gm., fat 80 Gm. and carbohydrate 160 Gm., and took protamine insulin 40 units and regular insulin 10 units, both being taken before breakfast. At no time during the illness was there any evidence of acidosis, but at times there was considerable glycosuria. September 22 he returned to the clinic, on which date his weight was 178 pounds (81 Kg.) and he stated that during recent days he had been taking 60 units of protamine insulin before breakfast, which maintained him sugar free twenty-four hours a day. It is interesting to note that again in this case, in which infection would be expected to produce a varying degree of diabetic acidosis, there was no sign of such a condition being present. The patient in two months under protamine insulin has gained 12 pounds (5.4 Kg.) in spite of a two weeks illness, and there has been marked subjective improvement under protamine insulin.

CASE 5.—History.—D. S., a white girl, aged 18, intelligent and cooperative, first developed diabetes in 1931 at the age of 13, the onset being acute in character over a period of six weeks with loss of weight, polyuria and the like. She was in Strong Memorial Hospital from July 31 to Aug. 15, 1931, for control of the diabetes and has subsequently been followed in

the diabetic clinic of that hospital. In the latter part of June 1933 there was a ten day admission to the hospital for gastroenteritis, which was complicated with diabetic acidosis. The patient has been on insulin since the onset of her diabetes and the clinical records revealed a persistent high blood sugar level with almost constant glycosuria until 1936, when she stated that she was essentially sugar free on regular insulin 20-0-20 and a self-regulated diet of protein 70 Gm., fat 60 Gm., carbohydrate 80 Gm. She has insisted for the past year that she could not eat any more than this allowance, and there has never been any reason to doubt the veracity of the patient.

Protamine Insulin Record.—Protamine insulin was instituted July 28, 1936, the patient being put on 35 units of protamine insulin with no supplemental insulin, with instructions to increase the protamine insulin and supplement with regular insulin if necessary. Her weight at this time was 143 pounds (65 Kg.). August 4 she was taking protamine insulin 40 units and regular insulin 5 units and stated that she was showing from 2 to 3 plus glycosuria at all times. The three hour blood sugar after eating was 253 mg. and the weight was 143 pounds (64.9 Kg.). August 11 she was taking protamine insulin 45 units and regular insulin 9 units and she stated that urines were 1 plus before breakfast and that there was still considerable glycosuria after breakfast and before lunch. The blood sugar two hours after breakfast was 247 mg. and she weighed 144 pounds (65 Kg.). August 25 she was taking protamine insulin 50 units and regular insulin 20 units, and she stated that the urine still showed 1 plus sugar before breakfast, with a 3 plus glycosuria after breakfast. The blood sugar two hours after food was 270 mg. and she weighed 144 pounds (65 Kg.). September 1 she was taking protamine insulin 65 units and regular insulin 25 units and was sugar free twenty-four hours a day. The blood sugar two and one-half hours after food was 127 mg. and the weight was 146 pounds. The patient stated that she was feeling very well. September 8 she was taking protamine insulin 70 units and regular insulin 25 units. She had increased the protamine insulin because of 1 plus glycosuria in the before breakfast specimen for three days, but there was no glycosuria during the remainder of the day; the weight was 148 pounds (67 Kg.). September 15 she was still taking protamine insulin 70 units and regular insulin 25 units and was sugar free twenty-four hours a day. The patient was advised at this time to reduce the dosage of regular insulin as much as possible. The weight was 152 pounds (69 Kg.). September 26 the patient was taking protamine insulin 80 units and no supplemental regular insulin. She stated that she had had three mild insulin reactions occurring in the late afternoon during the past week while taking a supplemental dose of 10 units of regular insulin along with 70 units of protamine insulin. She is now free from glycosuria on protamine insulin 80 units without any supplemental dose of regular insulin and is feeling perfectly well. Her weight, September 26, was 150 pounds (68 Kg.).

The patient presented a rather complicated problem in that her condition was apparently controlled before the institution of protamine insulin on regular insulin 20-0-20, but at the present time she requires twice the unit dosage in protamine insulin. She states, however, that she feels much better under this new routine than she did prior to the institution of protamine insulin. She has gained 7 pounds (3,175 Gm.) on a very low calory intake (which gain in weight has annoyed her somewhat as she has the antipathy characteristic of her sex in regard to gaining weight), but she volunteers the remark that she "feels much better in all ways than she did in the past."

CASE 6.—History.—J. J., aged 13, a very intelligent white girl, first developed signs and symptoms of diabetes mellitus two years before at the age of 11, the onset being sudden in character. She had had two admissions to the hospital, the first one being in January 1935, at which time her fasting blood sugar varied between 374 and 184 mg. While in the hospital insulin had been 35-15-30, which was reduced on discharge from the hospital to 35-0-30. She was subsequently followed in the diabetic clinic of the Rochester General Hospital during 1935, her insulin requirements averaging 30-0-30. It was noted that her blood sugar after food usually exceeded 250 mg. In September 1935 she was again admitted to the hospital in moderately severe diabetic acidosis, which complicated an acute infection of the upper respiratory tract. Following eighteen

days in the hospital she was discharged on insulin 30-10-15. Her last and final fasting blood sugar during this admission was 204 mg. She was subsequently seen at various intervals in the diabetic clinic; her weight in January 1936 was 85 pounds (38.6 Kg.). The diabetes seemed to be clinically controlled, but it is to be noted that blood sugar taken two hours after food January 30 and May 28 were 534 mg. and 440 mg. respectively. Her insulin dosage during the period from January to August 1936 when protamine insulin was instituted averaged 25-0-25; also during this interval considerable glycosuria had usually been present at various times during the day, but no infectious complications had arisen.

Protamine Insulin Record.—August 6, protamine insulin was instituted. Her weight on this date was 90 pounds (41 Kg.) and a blood sugar specimen two and one-half hours after food (following the injection of 25 units of regular insulin twenty minutes before breakfast) was 204 mg. The urine taken at the same time as the blood sugar showed a trace of sugar. She was put on protamine insulin 40 units one hour before breakfast and regular insulin 10 units twenty minutes before breakfast. The patient was sent home with instructions to return to the clinic in one week and to increase the protamine by units of 5 as necessary to produce a negative fasting urine in the morning; the regular insulin to be increased by units of 2 to control after-breakfast and before-lunch glycosuria. August 13 the weight was 91 pounds (41 Kg.) and glycosuria was 1 plus on most specimens, including fasting. The patient was taking 50 units of protamine insulin and 12 units of regular insulin before breakfast and hesitated to raise the insulin intake further, the blood sugar two hours after food being 250 mg. She was instructed to continue increasing protamine insulin and regular insulin as required. August 20 the weight was 92½ pounds (42 Kg.). She had been taking protamine insulin 55 units and regular insulin 16 units and was now sugar free in the fasting morning specimen but usually showed a 3 plus after-breakfast glycosuria. Blood sugar after meals was 114 mg. August 27 the weight was 94 pounds and she was taking protamine insulin 60 units and regular insulin 14 units. She was sugar free twenty-four hours most of the time, and blood sugar two and one-half hours after meals was 296 mg. The patient definitely had no glycosuria when this blood sugar was taken. September 3 she weighed 95½ pounds (43 Kg.) on 60 units of protamine insulin and 16 units of regular insulin. Fasting urines were always negative, occasionally 1 plus urine after breakfast. Blood sugar two hours after meals was 244 mg. The patient continued on the routine protamine insulin 60 units and regular insulin 16 units until September 11, at which time a subacute infection of the upper respiratory tract developed with a temperature of about 100 F. Urines became from 2 to 4 plus for sugar throughout the day. The patient was put to bed at home and protamine insulin dosage was maintained at 60 units, while regular insulin before breakfast was raised to 20 units and 20 units of regular insulin was given before supper. Fever continued until September 15, but glycosuria persisted, so supplemental doses of regular insulin were continued. September 17 she felt "peculiar" on arising; she took protamine insulin one hour before breakfast but no regular insulin, and when she was about to eat breakfast she suddenly became "unconscious," slumping to the floor, but the parent was able to get the patient to swallow some orange juice. In about ten minutes she became conscious and was very emotionally upset but took her breakfast. This was felt to be an insulin reaction, although glycosuria of 3 plus had been present on the same morning. The glycosuria at this time may be explained by the fact that the patient had not voided since 9 p. m. the previous evening, at which time the urine had been 3 plus. There was no evidence of acidosis at any time during the period of the infection of the upper respiratory tract. September 19 the insulin requirements had returned to protamine insulin 60 units and regular insulin 16 units. Her weight September 19 was 97 pounds (44 Kg.). September 26 there was still moderate glycosuria and a slight nasal discharge, but her weight was 101 pounds (46 Kg.).

It is interesting to note that one year previously this patient had an almost identical infection of the upper respiratory tract and had promptly gone into diabetic acidosis as a result, while this time there was no evidence of acidosis but a rather severe insulin reaction during convalescence. She has been on a diet of protein 80 Gm., fat 90 Gm., carbohydrate 170 Gm. and has

gained 11 pounds (5 Kg.) since the institution of protamine insulin. She has evidenced marked subjective improvement and states that she "never felt better in her life."

CASE 7.—History.—M. K., a white girl, aged 17 years, had a sudden onset of diabetes mellitus in 1933 (at the age of 14). Her past history included a guillotine amputation of the left arm for a *Bacillus welchii* infection which followed a compound fracture of the left radius and ulna at the age of 11. In 1935 reamputation of the stump was necessary. This admission, however, had nothing to do with the diabetes. During 1933 the diabetes was fairly well controlled on very small doses of regular insulin, the average dose being 5 units before breakfast. By 1935 her insulin requirements had risen to 30-0-30, her diet during the past two years averaging protein 80 Gm., fat 90 Gm., carbohydrate 170 Gm. Her postprandial blood sugars during 1935-1936, taken at odd times in the diabetic clinic, all exceeded 300 mg., and her weight in February 1935 was 110 pounds (50 Kg.) and in January 1936 was 103 pounds (46.7 Kg.), and she had continued during the current year to fail to gain weight. Her weight on admission to the Rochester General Hospital, July 16, was 97 pounds (44 Kg.).

Protamine Insulin Record.—The patient was admitted to the hospital July 16, at which time she had been (for three months) on protein 60 Gm., fat 110 Gm., carbohydrate 140 Gm., insulin dosage having been 30-0-30. The fasting blood sugar under regular insulin was 320 mg. The same diet was continued and protamine insulin 55 units was given one hour before breakfast, blood sugars being taken at 8 a. m. (fasting) and 8 p. m. daily. While in the hospital under protamine insulin the fasting blood sugars fell in forty-eight hours to normal values; namely, 85, 80 and 85 mg. The 8 p. m. blood sugars varied between 190 and 205 mg. During her hospital stay there was a tendency toward after-breakfast and before-lunch glycosuria but the remainder of the day the patient was sugar free under protamine insulin; no insulin reactions occurred and she was discharged from the hospital July 23 under a continued dosage of 55 units of protamine insulin with instructions to take 5 units of regular insulin twenty minutes before breakfast in an attempt to control the after-breakfast glycosuria.

Subsequent History.—July 30 the patient weighed 100 pounds (45.4 Kg.), now taking protamine insulin 50 units, regular insulin 5 units; urines were negative fasting and 3 plus after breakfast. The blood sugar after food was 266 mg. August 6 the weight was 102½ (46.5 Kg.) on protamine insulin 55 units, regular insulin 5 units, and she continued to be sugar free in fasting urines but showed 1-2 plus glycosuria after breakfast. The blood sugar after food was 392 mg. and the patient was instructed to increase regular insulin. August 13 the weight was 107 pounds (48.5 Kg.); she states that she is continuing on protamine insulin 55 units and regular insulin 5 units because she is sugar free twenty-four hours a day. The blood sugar two hours after food was 364 mg. August 20 the weight was 107½ pounds (49 Kg.) and she was taking protamine insulin 55 units and regular insulin 7 units; she stated she was sugar free twenty-four hours a day. On this visit the patient volunteered the remark that she felt "the best she had ever felt." September 3 she weighed 110 pounds (50 Kg.) and was taking protamine insulin 55 units and regular insulin 5 units; she stated that she continued to be sugar free twenty-four hours a day, yet the blood sugar that morning after food was 488 mg. The patient was advised to increase protamine insulin to 60 units and discontinue regular insulin. September 12 on the aforementioned dosage the weight was 111 pounds (50 Kg.) and the patient stated that she was sugar free twenty-four hours a day and was feeling perfectly well.

In this case it is rather difficult to evaluate the relatively high blood sugars with the steady freedom from glycosuria. I hope in the near future to determine accurately just where the renal threshold value is in this case. There has never been any reason to doubt the veracity of the patient, who is very intelligent and highly cooperative and is well versed in her condition. In this case, excluding the blood sugar readings, there has been marked clinical improvement as evidenced by the gain of 14 pounds (6.4 Kg.) since the institution of protamine insulin and a marked subjective improve-

ment as evidenced by the patient's various remarks. It would seem from the observation in this case that the only period of high blood sugar value must be between breakfast and lunch.

CASE 8.—History.—M. B., a very intelligent and cooperative white youth, aged 16, had an acute onset of diabetes mellitus in 1932 at the age of 12 years, the condition appearing shortly after convalescence from acute scarlet fever. During the period from 1932 to 1936 there had been two admissions to the Strong Memorial Hospital for severe diabetic acidosis, the last admission being in February 1936, at which time the carbon dioxide combining power was 17 volumes per cent. For the past six months this patient had been on a diet of protein 100 Gm., fat 100 Gm., carbohydrate 175 Gm., and during that period he had been taking insulin 27-25-35 and the diabetes was perfectly controlled except for a fasting urine glycosuria the control of which had not been attempted with an insulin injection at 1 a. m. The patient was admitted to the hospital on August 27.

Protamine Insulin Record.—The patient was kept on the diet previously mentioned and 80 units of protamine insulin was given one hour before breakfast and 20 units of regular insulin twenty minutes before breakfast. The fasting blood sugar before the institution of protamine insulin was 542 mg. and blood cholesterol was of normal value. During the first day under protamine insulin the urines were 4 plus for sugar on all specimens until before supper, when the Benedict reaction dropped to a trace and after supper the urine was negative. The 8 p. m. blood sugar was 165 mg. August 26, under the same insulin dosage as the previous day, fasting blood sugar was 80 mg. and the 8 p. m. blood sugar was 178 mg. On this day the patient was sugar free twenty-four hours. August 27, 80 units of protamine insulin and 10 units of regular insulin were given, the fasting blood sugar this day being 82 mg. and the 8 p. m. blood sugar 185 mg. and the patient showed a 2 plus Benedict reaction before supper and a 1 plus after supper, a trace of urine sugar having been present before lunch. August 28 the fasting blood sugar was 58 mg. and the patient was given protamine insulin 80 units and regular insulin 15 units. He was entirely sugar free during the day and was discharged from the hospital that evening. August 29, 80 units of protamine insulin was given and 10 units of regular insulin, and a trace of sugar was present in the fasting and after-breakfast specimens, no sugar being present for the remainder of the day. August 30 the supplemental dose of regular insulin was discontinued and on this day the patient was perfectly sugar free.

He has been carried on 80 units of protamine insulin since that time and is apparently perfectly controlled and had shown no evidence of glycosuria to September 26. His weight had increased from 110 pounds (50 Kg.) on March 21, to 124 pounds (56 Kg.) on Aug. 21, 1936. Since the institution of protamine insulin he has continued to gain and now weighs 126 pounds (57.2 Kg.). The patient has experienced no insulin reactions and no untoward local reaction from the admission of protamine insulin at a single site of injection. He feels perfectly well and is most pleased with the elimination of multiple insulin injections.

CASE 9.—History.—M. C., a white girl, aged 20 years, in whom diabetes first developed in 1926 at the age of 10 years, has presented one of the most persistently difficult control problems encountered both in the hospital and in the diabetic clinic of Strong Memorial Hospital. She had had eight previous hospital admissions during this ten year period in which diabetes played the major rôle. In 1934, because of a questionable chronic frontal sinusitis, a partial turbinectomy, bilateral, was done, and in December 1935 a turbinectomy, middle right, and an ethmoidectomy, anterior right, were done because of chronic right ethmoiditis. In spite of this extensive nasal surgery and the apparent clearing up of chronic foci of infection in the upper respiratory tract, the patient continued to show marked glycosuria at all times in spite of large doses of insulin given four times a day (before each meal and at 1 a. m.). She had never been too cooperative a patient, partly because of a feeling of despair with her persistent glycosuria in spite of large doses of insulin and strict dietary cooperation during varying periods of her diabetic history. She frequently exhibited signs of mild acidosis and never felt or considered herself to be really well. Her blood sugars after food taken

at fairly regular intervals since 1934 varied between 200 and 500 mg., the general average being well over 300 mg., and there was a constant 2 to 4 plus glycosuria. At each visit to the clinic positive diacetic and acetone urine reactions were the rule rather than the exception, and such changes were constant during all mild infections of the upper respiratory tract, to which the patient is most susceptible. Various dietary routines had been tried without success in the control of this patient. She was admitted to Strong Memorial Hospital August 27 for protamine insulin control. Her diet had been protein 70 Gm., fat 90 Gm., carbohydrate 100 Gm., because of persistent anorexia. Her weight since May 1936 had varied between 122 and 125 pounds (55.3 and 56.7 Kg.). She had been taking regular insulin 36-32-30-34 (the 34 units being given at 1 a. m.), and the urine specimen taken late the evening of admission to the hospital showed a 4 plus sugar and a 3 plus acetone reaction. The weight on admission was 121 pounds (55 Kg.) and physical examination was essentially negative except for an attitude of combined hope and despair that the new insulin would be of help in her case.

Protamine Insulin Record.—August 28 protamine insulin 150 units and regular insulin 50 units were given before breakfast, with a diet of protein 70 Gm., fat 80 Gm., carbohydrate 175 Gm. The twenty-four hour urine specimen showed 16.2 Gm. of dextrose, but glycosuria which was present until before supper disappeared after the evening meal. The blood sugars on this day were: 8 a. m., 62 mg.; 8 p. m., 66 mg. (the 62 mg. fasting blood sugar on this day had been preceded by 30 units of regular insulin administered at 1 a. m.). August 29 the weight was 123 pounds (56 Kg.); protamine insulin 150 units and no regular insulin was given on this date; the twenty-four urine specimen was negative for sugar and the 8 a. m. blood sugar was 57 mg. and the 8 p. m. blood sugar was 58 mg. August 30, protamine insulin was continued at 150 units with no supplemental regular insulin. The twenty-four hour urine specimen showed a trace of sugar and the fasting blood sugar was 46 mg. and the 8 p. m. blood sugar 63 mg. August 31, protamine insulin was maintained at 150 units and the patient continued to be sugar free. The fasting blood sugar on this date was 42 mg. and the weight 126 pounds (57.2 Kg.). She was discharged from the hospital on this date with instructions to continue on the same diet and to reduce protamine insulin by units of 10 to the lowest possible level. During her stay in the hospital a ravenous appetite developed, but increased appetite was the only symptom of hypoglycemia observed or complained of. It is interesting to note that this patient really desired and wanted her meals for the first time in years, and the subjective improvement was amazing. Whereas in the past an "I don't care" attitude had long prevailed, an encouraging "I am now like a normal human being" feeling became apparent. The brief subsequent history in this case is also most interesting. September 10 the patient was taking protamine insulin 120 units and was sugar free twenty-four hours a day and weighed 135 pounds (61 Kg.); she was still enjoying her food and feeling "the best she had ever felt." September 15 an infection of the upper respiratory tract developed and she began to show from 2 to 4 plus glycosuria at all times during the day. She increased protamine insulin to 140 units and maintained it at that level. In spite of severe glycosuria in the presence of an acute infection of the upper respiratory tract, she has shown no urinary evidence of acidosis, nor has she taken any supplemental regular insulin during this period. September 26 she was showing a 2 plus glycosuria at all times during the day and there was evidence of a moderate residual infection in the right antrum and in the right frontal sinus. Whereas in the past an infection of this type invariably produced signs and symptoms of varying degrees of acidosis, there has been no evidence whatever of such a condition being existent during the present illness. It would seem that protamine insulin definitely tends to prevent acidosis in the presence of infection in the patient with severe juvenile diabetes, as this fact has been observed in other cases herein mentioned. The patient's weight, September 26, was 134 pounds, and she stated that she "felt fine."

In this case there was a total gain in weight of 13 pounds (6 Kg.) in spite of a rather persistent infection of the upper respiratory tract. On a 20 per cent caloric increase in her diet there was a diminution in

insulin requirements (under normal conditions) with the prospect of further insulin dosage reduction in the future.

CASE 10.—History.—F. R., a white youth, aged 16, presents the most clinically severe juvenile diabetic record under observation in the Rochester General Hospital. His diabetic history, in brief, is that diabetes was first diagnosed ten years before at the age of 6 years, the onset of the disease being sudden and acute. Since 1926 the patient had had ten admissions to the Rochester General Hospital, one of these admissions being for tonsillectomy in 1934 (tonsillectomy and adenoidectomy being done because of frequent infections of the upper respiratory tract). Early in 1935 there were two admissions for catarrhal jaundice, at which time the complications of this disease plus the acute diabetes made the prognosis very grave, but rather unexpected recovery occurred. The patient has been under insulin since 1927 in dosages varying from 40 units daily in divided doses to in excess of 100 units daily in divided doses. At no time up to the present had it been felt that his diabetes was adequately controlled. Since 1933 the general average of all blood sugars after food varied between 300 and 500 mg., and the patient had never been known to be sugar free in recent years in spite of massive doses of regular insulin. His weight in January 1936 was 95 pounds (43 Kg.). The patient was admitted to the wards of the Rochester General Hospital July 16, 1936, and remained there until July 26. He had been and was continued on a diet of protein 80 Gm., fat 90 Gm., carbohydrate 170 Gm. Regular insulin at the time of hospitalization had been 45-20-45. During the first day in the hospital under his usual routine of regular insulin the fasting blood sugar was 275 mg. and the 8 p. m. blood sugar 450 mg. with no urinary evidence of acidosis. The carbon dioxide combining power and cholesterol were of normal values on the first day at the hospital. Heavy glycosuria was present during all of the first day.

Protamine Insulin Record.—On the second day in the hospital, protamine insulin 75 units and regular insulin 20 units, both given before breakfast, were instituted. The blood sugar values remained high on that day, being taken twice a day, fasting and at 8 p. m. Protamine insulin was gradually raised to 120 units and regular insulin 25 units before the urine became sugar free for twenty-four hours a day. With this dosage, fasting blood sugars varied between 85 and 65 mg., the 8 p. m. blood sugar being 278 mg. On the morning the blood sugar was 65 mg. the patient had a mild insulin reaction, which was promptly relieved by orange juice; and on another morning, with a blood sugar of 85 mg., there were slight symptoms of hypoglycemia. Since his discharge from the hospital, July 26, the patient has been followed at weekly intervals in the diabetic clinic. August 6, under protamine insulin 120 units and regular insulin 30 units, the blood sugar three hours after food was 534 mg., the fasting urine being negative, while the urine three hours after food was 3 plus with negative acetone and diacetic acid reactions. During the weeks of August 13 and 20 there were occasional days with heavy glycosuria, the blood sugar after food on August 13 being 334 mg. August 20, the blood sugar after food was 80 mg. August 27 on the same dosage of protamine insulin and regular insulin the blood sugar two hours after food was 190 mg. The patient stated at this time that he on occasion "spills" sugar after breakfast. September 3 the patient was taking protamine insulin 120 units, regular insulin 35 units and was sugar free twenty-four hours a day. September 10 insulin was as of September 3 and he was sugar free twenty-four hours a day, blood sugar after food being 44 mg. (the patient stated that he had no symptoms of reaction that morning, although on September 6 and 7 he had experienced slight reactions two hours after breakfast). Regular insulin was reduced to 25 units, protamine insulin being maintained at 120 units. September 17 on protamine insulin 120 units and regular insulin 25 units the patient was sugar free twenty-four hours a day. The blood sugar after breakfast this morning was 84 mg. He was now reducing his dosage of regular insulin in an attempt to eliminate it entirely.

The patient, who is reasonably intelligent and very cooperative, stated that he felt "the best he had ever felt." His weight, which was 97 pounds (44 Kg.) at the start of protamine insulin control, was on September 17 104 pounds (47 Kg.). He is in no way inconvenienced by taking 3 cc. of protamine insulin at

one injection, at one site of injection, nor has he ever observed any subcutaneous reaction to this relatively large injection. At the present time he may be considered a perfectly controlled diabetic patient, but it is not felt that the supplemental dosage of regular insulin given twenty minutes before breakfast can be avoided permanently in this case, although at present the protamine insulin dose has been raised to 140 units and the supplemental regular insulin has been abolished, and the patient states that he is sugar free throughout the day; but blood sugar determination and hospital urinalysis remains to be done to determine whether or not regular insulin is essential. He is continuing on a diet of protein 80 Gm., fat 90 Gm., carbohydrate 170 Gm., and states that his appetite is much better than it was under his old regimen.

The patient also had a course of a commercial preparation of the pituitary growth hormone early in 1936, the dosage being 2.5 cc. subcutaneously each week for three months. His height in January 1936 was 61 inches (155 cm.) and in May it was 62 inches (157.5 cm.). The present height is 63½ inches (161 cm.).

COMMENT

Although case 8 is of the type that one likes to report from the standpoint of most successful results, it is significant that all these patients are doing well clinically whether high blood sugars are present or not; such was certainly not the case in some cases prior to the institution of protamine insulin. The obvious convenience of administration of all insulin before breakfast in juvenile diabetes needs no comment. It is felt that many of these patients required much more regular insulin than they had been taking under the old regimen to afford adequate control of their diabetes. The subjective and objective improvement in all cases has been most striking, and all cases have evidenced objective gains as determined by gain in weight and the like. All these cases have taken their total required protamine insulin at one site of injection without signs of local subcutaneous reaction. We intend to investigate further the question of whether or not there is any elevation of the renal threshold in some of these cases that have presented relatively high blood sugar levels without "evidence" of glycosuria. My associates and I considered cases 9 and 10 to be true examples of "insulin wasters," and the efficiency of protamine insulin has been most obvious in these two cases. We also feel that there is definite evidence that protamine insulin apparently prevents diabetic acidosis in juvenile diabetic patients suffering from respiratory infections.

SUMMARY

1. Ten cases of diabetes in juveniles are being satisfactorily controlled with protamine insulin, all insulin being given before breakfast.
2. Marked subjective improvement has been the rule in all cases.
3. Hypoglycemic reactions with protamine insulin, while comparatively rare, may be insidious in onset and very severe.
4. No local subcutaneous reactions have been observed from massive doses of protamine insulin injected at a single site.
5. Protamine insulin seems to prevent diabetic acidosis in infections, although profuse glycosuria may be present.
6. There is some evidence that protamine insulin may tend to raise the renal threshold in certain cases.
7. Protamine insulin is highly efficacious when used in cases of "insulin wasters."

ADDENDUM

The foregoing article, written of October 1936, is now subject to the following brief addition. There have been no reasons to change the basic conclusions

mentioned. Patients 1, 5, 7, 8 and 10 have progressed normally, the tendency being toward diminished protamine insulin requirements (patient 10 now requires but 100 units daily of protamine insulin and no regular insulin). Patient 6 underwent an appendectomy for acute appendicitis in November without need of regular insulin or increase in her regular maintenance dose of protamine insulin and made an uneventful recovery and her insulin requirements have subsequently diminished. Patient 2 developed an acute hysteria in February from which she promptly recovered in the hospital; while she was in the hospital, protamine insulin was discontinued in favor of regular insulin but adequate control of her diabetes had been previously obtained. Patient 3 fell off his bicycle in November, suffering a contusion over one eye, and since this accident his protamine insulin requirements have approximately doubled but he continues to progress satisfactorily. Patient 4 in February developed an acute dementia praecox for which asylum commitment was required. His diabetes, however, has been adequately controlled with protamine insulin.

The question has been raised that protamine insulin might be a precipitating factor in the psychoses of patients 2 and 4, but we do not feel at this time that there is any adequate evidence to support such a contention.

1066 Monroe Avenue.

Clinical Notes, Suggestions and New Instruments

A CONSERVATIVE OPERATION FOR THE CURE OF SO-CALLED INGROWN TOENAIL

ROBERT W. BARTLETT, M.D., St. Louis

Recent reports in the literature of large series of cases of ingrown toenail make it apparent that the methods of treatment in common usage yield far too high a rate of recurrence and too long a period of incapacity to the victims of this frequent malady. The thoughtful recent analysis of Keyes¹ is fairly representative of current practice, for in a series of 110 cases treated in several St. Louis institutions the recurrence rate was 13.6 per cent and the average period of healing after standard operative procedures was nineteen days. Also, the period of time until pain was relieved, varying with the method of operation, averaged between two and one-half and seven days.

Operations for the cure of ingrown toenail fall into two main classes: (a) those in which the attack is aimed principally against a strip of nail and the matrix underlying the nail base and (b) those in which the nail wall is made the site of plastic procedures. Of the former the most common procedure involves the excision of a wedge of tissue down to the periosteum of the terminal phalanx to include a strip of nail about one-fourth inch wide, the underlying nail bed and matrix and the adjacent nail wall and ulcer. The Winograd² operation is based on the same principle of removing the nail bearing matrix but is less radical as concerns the soft tissues. Complete removal of the nail without the matrix is to be condemned because the patient is almost certain to have a recurrence when the new nail comes in and complete removal of the nail plus matrix is far too radical, giving too long a period of disability and healing. A clear review of the anatomy about the toenail may be obtained in Maximow's³ recent textbook.

Soft tissue operations as described by Emmert,⁴ Kenerson⁵ and Winslow⁶ consist essentially of removing all the soft parts from the side of the toe in one slice, thus leaving a large raw surface which takes a month or more to heal over. Likewise the procedure set forth by Ney⁷ of cutting two pedicle grafts on the side of the toe and then removing a slice of soft tissue beneath them is quite radical and requires from two to seven weeks for complete healing.

At this point I would suggest that the terms "ingrowing toenail" and "ingrown toenail" are misnomers. This is essentially a disease of civilization and is said to be unknown among the primitive races who do not wear shoes. The etiology in the vast majority of cases seems clearly to be shoes that are too narrow and often too short; these cause the nail wall to be pressed against the sharp nail edge, resulting in a break in the skin with subsequent infection of the soft tissues, ulcer formation, and the heaping up of granulation tissue. I do not subscribe to the belief that the nail actually changes the course of its growth down into the soft tissues.

The high rate of recurrence and long period of disability associated with the standard operations for ingrown toenail are the reasons for the reporting of the following original operative procedure as practiced by Dr. Bartlett Sr. and his associates for many years. The method was commented on by Keyes¹ several years ago. Its basic principle is different from any other known to us in that a wedge of soft tissue is removed from the side of the toe through an uninfected field, with the result that when the skin edges are brought together the nail wall is pulled away from the edge of the nail and held away permanently by the subsequent scar tissue formed. In addition, healing is invariably by first intention in our experience. Needless to say, the patient must be instructed as to properly fitting shoes so that future trouble may be avoided.

When the patient is first seen, the soft tissues are usually acutely inflamed and the toe quite tender. He is then sent home with instruction to soak the foot in hot water several times a day and to rest it as much as possible. When he returns in from four to seven days the infection will be found to have subsided markedly and he may then be operated on without hospitalization.

TECHNIC

The entire toe is prepared with iodine and alcohol or any other suitable solution and draped, after which the digital nerves are blocked with 2 per cent solution of procaine hydrochloride with 2 minims (0.12 cc.) of epinephrine per ounce added. The site of injection selected is just distal to the metatarsal phalangeal joint. From five to ten minutes is required for analgesia to be complete, after which a sterile rubber band tourniquet is supplied at the base of the toe so as to insure a dry operative field. The site of the so-called ingrown toenail is then covered with an alcohol sponge, and a wedge of uninfected tissue is excised from the side of the toe extending from a short distance proximal to the level of the base of the toenail to a point midway between the tip of the toe and the corner of the nail. The wedge extends inward to the depth of the bone, and externally its widest point is at the level of the ingrown nail. At this point the width of the skin excised should be about one-fourth inch. The skin edges are then approximated with five or six interrupted silk stitches and it becomes apparent how well the nail wall has been pulled away from the nail edge. At this point I generally trim off the corner of the nail and then apply a dry dressing, after which the tourniquet is removed. The patient returns home with instructions to rest and elevate his foot for one day, after which he may go about with a slipper or cut out shoe in a fairly normal manner. The dressing is changed on the third day and the stitches are removed at the end of a week. In all our cases there has been primary healing and the patients have experienced little pain or disability after forty-eight hours.

TYPICAL CASE REPORTS

CASE 1.—Miss L. W., aged 20, of Maplewood, Mo., had a typical ingrown toenail of the lateral aspect on the left big toe.

From the Department of Surgery, Washington University School of Medicine.

1. Keyes, E. L.: The Surgical Treatment of Ingrown Toenails, J. A. M. A. 102: 1458-1460 (May 5) 1934.

2. Winograd, A. M.: Modification in Technic of Operation for Ingrown Toenail, J. A. M. A. 92: 229-230 (Jan. 19) 1929.

3. Maximow, A. A.: A Textbook of Histology, Philadelphia, W. B. Saunders Company, 1930, pp. 422-425.

4. Emmert, cited by Dowd, C. N.: Twenty-Nine Cases by Anger's Method, M. Rec. 43: 472, 1893.

5. Kenerson, V.: Operations for Ingrowing Toenail and Hallux Valgus, New York M. J. 82: 682-696, 1905.

6. Winslow, N.: Ingrowing Toenail, Hosp. Bull. Univ. Maryland 10: 99, 1914.

7. Ney, G. C.: An Operation for Ingrowing Toenails, J. A. M. A. 80: 374 (Feb. 10) 1923.

June 8, 1936, she was instructed to have one week of hot soaks preoperatively.

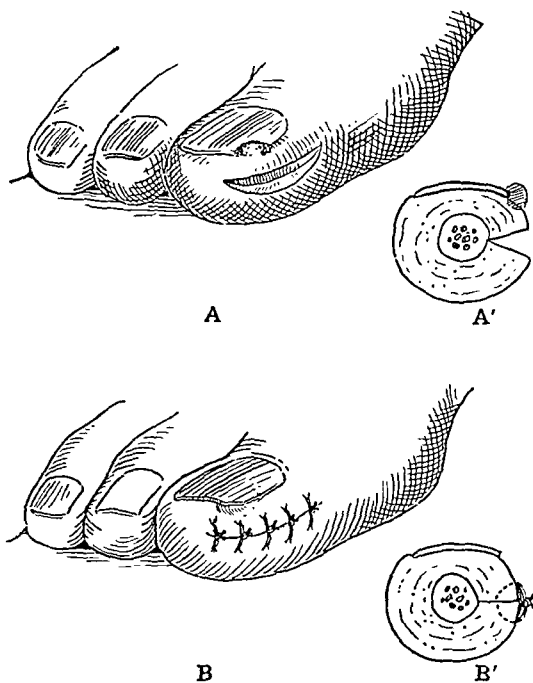
June 15, under digital nerve block anesthesia, a wedge of tissue was excised from the lateral side of the left big toe down to the phalanx. The skin was closed with interrupted silk stitches. A dry dressing was applied.

June 17 there was no evidence of infection of the incision. A dry dressing was applied.

June 22 the stitches were removed. For the past few days the patient had been partially confined to bed with recurrence of hemorrhage from esophageal varices but was off the foot the first day only because of discomfort.

October 21 she reported that she had had no further trouble from the foot. She started wearing regular shoes on the seventh day after the operation. Examination showed that the soft tissues had held away from the lateral border of the nail and that the nail was growing out normally.

CASE 2.—Mrs. M. T., aged 54 of East St. Louis, Ill., seen Oct. 21, 1935, had had trouble with ingrown toenails for many years. These were most marked on the lateral aspect of each big toe, more so on the left than on the right.



A shows a wedge of tissue excised from the side of the toe through an uninfected field. The incisions extend from just proximal to the level of the base of the nail to a point midway between the tip of the toe and the corner of the nail. Externally the widest point of the wedge is opposite the site of the "ingrown toenail." A' shows the apex of the wedge extending to the bone.

B and B' show the nail wall pulled away from the side and corner of the nail; also the corner of the nail trimmed off.

October 28, under digital nerve block anesthesia, a wedge of soft tissue was excised from the lateral aspect of the left big toe down to the phalanx. The skin edges were then approximated with four interrupted silk stitches, thus pulling the soft tissues adjacent to the ingrown toenail away from it. A dry dressing was applied.

October 31 the wound was clean. A dry dressing was applied.

November 4 the incision was clean. The stitches were removed. The patient was off the foot only one day postoperatively and then walked without discomfort.

December 9 she reported that she had continued without discomfort.

Oct. 22, 1936, she reported that she had had no further trouble. Examination showed the soft tissues nicely pulled away from the corner of the nail.

SUMMARY

1. The original operation for the cure of so-called ingrown toenail here presented is a clean procedure, allowing primary

union, and is curative without being radical. The period of postoperative disability and discomfort is far less than with any other method with which I am familiar.

2. I have not seen a single recurrence following this procedure.

3. It is essential that the etiology of this lesion be explained to the patient so that ill fitting shoes may not be worn in the future.

4. The terms "ingrown toenail" and "ingrowing toenail" are misnomers.

929 University Club Building.

HEREDITARY PRANCE-GAIT

EDWARD PARNALL, M.D., ROCHESTER, N. Y.

In the city of Rochester, N. Y., within the parish of Our Lady of Mount Carmel, there lives a family of seven individuals whose affliction has caused them to be called "i cavalli" by the neighbors. The reason for the nickname, which was not given in any unkindly spirit, is a peculiar prancing, high-stepping gait, which characterizes all but two of the seven, in varying degree.

The condition came to my attention through the oldest son, Lorenzo, who came to the orthopedic clinic of the Rochester General Hospital complaining of pain in his right hip, and of nothing else. Physical examination brought to light a paralysis of both anterior tibial muscles, which caused an obvious foot-drop gait. It seemed to the examiner that the patient, in order to balance himself better in walking, held his hips slightly flexed and his spinal column in considerable lordosis. Examination of the painful hip proved negative, nor was any lesion demonstrated by x-ray examination. There was no history of any previous infection with poliomyelitis, and the boy remarked that his father walked with a limp. He was then lost sight of.

At a later date, when I had business in the neighborhood of the family, I learned of its nickname and had an opportunity to observe all its other members.

The father, Angelo, was born in Italy and states that neither his father, mother, uncles nor brothers were affected. He is not sure of his grandfather. He himself is a laborer, able bodied and active. He walks with a moderate prancing gait, showing on examination a total paralysis of both anterior tibial muscles, with no other muscle involved.

The mother, born in Italy, is unaffected.

The oldest child, a woman in her twenties, is unaffected.

The second child, Lorenzo, walks with a very gross prancing gait, lifting his feet high off the ground in order not to drag his toes, with moderate flexion of the hips and considerable lordosis of the lumbar spine, as described. Tibial paralysis was as described.

The third child, an adolescent girl, has the paralysis described, without the postural deformity of her older brother.

The fourth child, a boy of 13, has the paralysis described, slight lumbar lordosis, and is troubled by frequent falling.

The fifth child, a boy of 10 or 12, has the paralysis described, no lordosis, moderate prance-gait, but no complaints.

The cooperation of the father was very hard to secure, my efforts to obtain his consent to a more thorough investigation meeting with flat refusal. The boy Lorenzo, who is now under the care of a chiropractor, was urged to have tendon transplants. However, it was well established that the only muscle to be affected was the tibialis anterior of each leg. The electrical reactions of the affected muscles would have been desirable to obtain, not to mention biopsies in addition. At the present writing, therefore, it is impossible to state whether the condition is due to absence of the muscle or to a peripheral paralysis. It seems to me that the former is the correct hypothesis, as there is no anterior tibial tendon palpable in its proper course. The condition bears no similarity to anything I have ever seen or heard of, except cases of congenital absence of muscles. Muscular dystrophy, myasthenia gravis, dystrophy of Charcot-Marie-Tooth and allied muscular paralyses, including those with a hereditary factor, seem manifestly unlike it. I have made an extensive search through the literature for a report of a similar lesion but so far have been unsuccessful.

One is somewhat at a loss to fit a name to this syndrome. "Hereditary foot-drop," "familial foot-drop" describe only the appearance of the condition, while "hereditary absence of the tibialis anterior muscle" is not a proved certainty. One might take a leaf out of the neighbors' book and call it "cavallosis" or wax platonistic and suggest "pranciness." Until it is possible to do a dissection of the region affected and prove the exact nature of the lesion, I feel that "hereditary prance-gait" is a pathonym both descriptive and practical.

277 Alexander Street.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

NOVATROPINE.—Homotropinemethylbromide.— $C_{16}H_{21}O_2N.CH_2Br$.—The methylbromide of the alkaloid homatropine.

Actions and Uses.—Novatropine is proposed for use in the treatment of gastro-intestinal spasm and hyperchlorhydria. Animal experimentation has shown it to be less active than atropine but also less toxic.

Dosage.—Adults: one or two tablets three times daily before meals; children and infants: according to age.

Manufactured by Campbell Products, Inc., New York. No U. S. patent. U. S. trademark 240,537.

Novatropine Tablets, $\frac{1}{4}$ grain: Each tablet contains $\frac{1}{4}$ grain (2.5 mg.) homotropinemethylbromide.

Novatropine occurs as an odorless, white, crystalline powder, possessing a bitter taste, soluble in water and alcohol but insoluble in ether. It melts between 191 and 192 C., with slight decomposition. Aqueous solutions (1 in 50) are neutral to litmus.

Dissolve about 0.5 Gm. of novatropine in 25 cc. of distilled water; separate portions of 2 cc. are not precipitated by 1 cc. portions of sodium carbonate solution, sodium hydroxide solution, or trinitrophenol solution (distinction from most of the alkaloids of atropine) but are precipitated by 1 cc. portions of potassium mercuric iodide solution, iodine and potassium iodide solution, and a 1.5 per cent solution of silicomolybdic acid. Add a few drops of nitric acid to about 0.05 Gm. of novatropine, evaporate the mixture to dryness on the water bath, cool the residue and add a few drops of alcoholic potassium hydroxide solution: the residue does not become violet colored (distinction from atropine, hyoscyamine and scopolamine).

Add 0.5 cc. of ammonia to 1 cc. of an aqueous solution of novatropine (1 in 100), shake the mixture with chloroform, remove the aqueous layer, and evaporate the chloroform solution to dryness on the water bath. Warm the residue so obtained with about 1.5 cc. of a solution made by dissolving 1 Gm. of mercury bichloride in 50 cc. of a mixture of 5 volumes of alcohol and 3 volumes of distilled water: it does not develop a yellow or red color (distinction from homatropine hydrobromide, atropine and hyoscyamine).

Incinerate about 0.5 Gm. of novatropine, accurately weighed: the ash amounts to not more than 0.1 per cent. Dry about 0.5 Gm. of novatropine to constant weight at 100 C.: the loss in weight does not exceed 0.1 per cent. Transfer about 0.3 Gm. of novatropine, accurately weighed, to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the method described in Methods of Analysis of the Association of Official Agricultural Chemists, fourth edition, page 23, art. 19: the amount of nitrogen is not less than 3.7 per cent, nor more than 3.85 per cent. Transfer about 0.3 Gm. of novatropine, accurately weighed, to a 400 cc. beaker and determine the bromide content according to the method described in Methods of Analysis of the Association of Official Agricultural Chemists, fourth edition, page 131, art. 35: the amount of bromide found corresponds to not less than 21.3 per cent, nor more than 21.9 per cent.

PAPAVERINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1936, p. 321).

Papaverine Hydrochloride-Mallinckrodt.—A brand of papaverine hydrochloride-N. F.

Manufactured by Mallinckrodt Chemical Works, St. Louis.

OPTOCHIN HYDROCHLORIDE.— $C_{16}H_{22}N_2OH.O.C_2H_5.HCl$.—The hydrochloride of ethylhydrocupreine.

Actions and Uses.—See general article, Ethylhydrocupreine, N. N. R., 1936, p. 216.

Dosage.—For application to the eye and instillation into the conjunctival sac, a freshly prepared 1 or 2 per cent solution is used. It is not recommended for oral administration.

For standards see the U. S. Pharmacopeia under Aethylhydrocupreinae Hydrochloridum.

Tablets Optochin Hydrochloride, 0.1 Gm.

Manufactured by Rare Chemicals, Inc., Nepera Park, N. Y., under U. S. patent 1,062,203 (May 20, 1913; expired) by license of the Chemical Foundation, Inc. U. S. trademark 99,822.

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
FRANKLIN C. BING, Secretary.

STRAINED FRUITS AND VEGETABLES IN THE FEEDING OF INFANTS

Milk is the principal food for babies, but other foods are desirable or essential. Carbohydrate supplements are customary items of the diet of the bottle-fed infant at an early age. It is usual also to include orange juice or some other food that provides vitamin C, and cod liver oil or other source of vitamin D. Within the last two decades the addition to the infant's diet of a variety of cereal products, toast and zwieback, eggs, fruits and vegetables has been widely adopted by pediatricians.¹ Solid foods when first given to the infant must be finely divided in order that the baby may swallow them and because coarse particles of tough fiber are mechanically irritating to the delicate digestive tract of the very young infant. The preparation of coarser vegetables and fruits by forcing them through a sieve or colander is therefore not only desirable but at the beginning is usually necessary. Directions for preparing sieved foods in the home are relatively simple and, properly prepared, the home strained foods are not inferior in nutritive value to the commercial products. The manufacturers of canned foods have met the demand for strained products by marketing a variety of canned sieved foods. It is the purpose of this report to consider the evidence that is now available and to summarize in the light of present knowledge the nutritional significance of sieved fruits and vegetables.

Among the products that have been submitted to the Council on Foods there now stand accepted a number of brands of sieved foods. These may be divided conveniently into several groups:

1. Vegetables packed singly, including asparagus, beets, carrots, celery, beans (green and wax), peas, spinach and tomatoes.

2. Vegetable combinations or "soups," which are sometimes packed with added cereal or beef broth.

3. Strained fruits packed singly or in combination with other fruits.

4. Products which are related to the foregoing products in that they are intended for the diet of the infant, including cereals, which are sometimes prepared with added wheat germ or milk, and meat products such as beef broth and so-called liver soup which is composed of beef liver, mixed vegetables, whole cereals and beef broth.

The methods of preparing commercial canned sieved foods vary somewhat in different factories. The raw materials are usually fresh fruits and vegetables, but some firms begin with products that are already canned. Briefly outlined, the general canning process consists of heating the food, after preparation for cooking, in a closed kettle under light steam pressure until it is soft enough for sieving. It is then forced through a cylindric monel metal screen with very fine holes, usually 0.02 inch in diameter. Coarse fibers that will not pass through the sieve are discarded and the sieved food is conducted to vacuum tanks, where the water content may be adjusted to secure the desired consistency. The product is packed into cans, sealed and processed according to the requirements of the individual food. It is the aim of most manufacturers to keep the destruction of vitamin C as low as possible; this is aided by performing the operations in a closed system in which air is excluded by means of steam or by high vacuum. Loss of soluble constituents of fruits and vegetables is avoided as far as possible by discarding no liquid during cooking, straining or packing.

Composition.—The composition of individual commercially strained fruits and vegetables is largely dependent on the composition of the original products from which they are made. It is, however, advantageous to consider the average composition of strained foods as a group from the standpoint of the contribution these foods might make to the diet of the baby.

1. Brennemann, Joseph: Breast Feeding and Mixed Feeding, in Brennemann's Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1937, vol. I, chapter 25.

In the accompanying table is shown a summary of the important food values provided by the majority of brands of sieved foods that now stand accepted by the Council.² Figures are also included that represent average values for pasteurized cow's milk, cod liver oil, orange juice, sieved canned tomatoes, whole and refined cereal and egg yolk. These foods, with the possible exception of egg yolk, may be considered as basic in the diet of the normal infant. Carbohydrate supplements are usually given in addition, but for the purpose of the present discussion these may be omitted.

From the table it may be estimated that a 6 or 7 months old baby who is taking among other things 24 ounces of pasteurized cow's milk, 2 teaspoonfuls of cod liver oil, 1 ounce of orange juice, the equivalent of one-half ounce of whole grain cereal (dry) and one egg yolk is receiving from these sources a daily total of approximately 28 Gm. of protein, 0.86 Gm. of calcium, 0.76 Gm. of phosphorus and 3.6 mg. of iron. This infant would also be receiving approximately 7,100 U. S. P. units of vitamin A, 100 International units of vitamin B₁, 375 International units of vitamin C, more than 700 U. S. P. units of vitamin D and more than 400 Sherman-Bourquin units of vitamin G. Although the baby's requirements for these dietary essentials are not known with numerical accuracy, clinical experience indicates that with the possible exception of iron and vitamin B₁ the foregoing quantities of these factors are

titles is receiving ample supplies of vitamins A and C from these sources alone. However, one should not lose sight of the fact that nowadays a considerable number of infants may receive their entire quota of vitamin D from sources which, unlike cod or other fish liver oils, are devoid of vitamin A. For infants who receive no vitamin A other than that supplied by ordinary foods, the canned strained fruits and vegetables may be an important supplementary source of this essential vitamin. Of course not all strained foods are good sources of vitamin A, but carrots, spinach and tomatoes may assay as high as 800 or more U. S. P. units of vitamin A per ounce.

Strained Foods as Sources of Iron.—It has now been more or less generally accepted that the quantities of iron furnished by either breast milk or cow's milk do not adequately meet the requirements of the normal infant. Nature provides for this dietary deficiency by supplying a reserve of iron in the liver and other tissues and in the blood itself of the child before birth.³ This reserve supply might be expected theoretically to last until the child is about 6 months old, but it is usually exhausted considerably before this time. Metabolism studies of young infants usually show a negative iron balance.⁴ A slight degree of anemia appears to be more prevalent among infants considered normal than has been previously recognized. The conclusion has been drawn that the average baby is probably living on a relatively slight margin of safety with respect

Average Food Values of a Few Foods Used in Infant Feeding

Food	Quantity	Calories	Protein, Gm.	Calcium, Gm.	Phos- phorus, Gm.	Iron, Mg.	Vitamin				
							A Units	B ₁ Units	C Units	D Units	G Units
Cow's milk, pasteurized.....	24 fl. oz.	490	23	0.82	0.62	0.42	2,000	70	35-120	...	400
Cod liver oil, minimum stan- dard U. S. P.	1 tsp.	35	...	.....	.....	....	2,240	..	...	815	...
Orange juice, fresh.....	1 fl. oz.	12	...	0.009	0.005	0.07	27	9	300	...	10
Canned tomatoes, sieved.....	2 fl. oz.	13	...	0.006	0.014	0.24	600	20	200	...	14
Egg yolk.....	1	56	2.5	0.021	0.079	1.3	600	15	...	20 to 100	35
Cereal, whole grain (oatmeal)..	½ oz. dry	55	2.3	0.010	0.056	0.5	.....	15	...	...	?
Cereal, refined (farina).....	½ oz. dry	50	1.6	0.003	0.019	0.1	.....	?	...	...	?
Canned strained fruits and vegetables											
Minimum.....	2 oz.	12	0.2	0.006	0.006	0.6	400	3	18	...	5
Maximum.....	2 oz.	30	0.8	0.018	0.028	1.8	7,200	24	280	...	23

These figures represent approximate values only. International units are designated except for vitamin G, which is reported in Sherman-Bourquin units.

suitable under normal conditions; there are, of course, variations in the requirements at different ages. With these figures in mind, one may with profit consider the composition of canned sieved foods and the contribution that they may make to the diet.

From the figures presented in the table it can be concluded that the amounts of protein, fat, calories, calcium, phosphorus and vitamin G which might be furnished by 2 ounces of the majority of canned sieved foods are hardly to be considered significant additions to the baby's diet. On the other hand, some of these foods contain appreciable quantities of vitamins A, B₁, and iron, and a few—such as canned tomatoes, canned spinach and other greens—contain appreciable amounts of vitamin C. The strained foods provide also crude fiber, iodine, copper and other substances the nutritional importance of which cannot be evaluated at the present time because of lack of sufficient evidence.

It seems probable, in the light of present-day evidence, that the average normal infant's requirements for vitamin A and vitamin C are adequately met by an intake of approximately 3,000 International units of the former and about 300 International units of the latter vitamin. On this assumption it is obvious that the normal infant who is fed whole milk, cod liver oil and either orange or tomato juice in customary quan-

ties to its intake of iron, and for some babies the iron supplied by ordinary foods is inadequate.⁵

It has been suggested that the optimal iron requirement during the first year of life may be as high as 0.7 mg. per kilogram of body weight or as much as a total of 5 mg. from 3 to 6 months and 10 mg. from 6 to 12 months of age.⁶ If these large amounts of iron are indeed required, it is evident that the quantity of iron supplied by the basic foods enumerated in the foregoing paragraphs is inadequate and that all dietary sources of this mineral are important. As shown in the table, 2 ounces of commercially canned strained foods may provide from 0.6 to 1.8 mg. of iron. Larger servings will of course supply correspondingly larger amounts. Whether the iron of all fruits and vegetables is effectively utilized by the baby is not clear at the present time. Contradictory results have been reported⁷ and further evidence is necessary. The fact remains, however, that canned strained fruits and vegetables may supply what appear to be significant amounts of this essential dietary factor.

2. The composition of products accepted by the Council has been published in THE JOURNAL. Other sources of information are:
Hanning, Flora: Canned Strained Vegetables as Sources of Vitamin A, J. Am. Diet. A. 9: 295 (Nov.) 1933.
J. Am. Diet. A. 9: 295 (Nov.) 1933.
A Comparison of Vitamins B and G in Canned Strained Foods, J. Nutrition 8: 449 (Oct.) 1934.
Further Studies of the Content of Vitamins A and B in Canned Strained Vegetables, J. Am. Diet. A. 12: 231 (Sept.) 1936.
Comparison of the Biological and Chemical Methods for the Determination of Vitamin C in Canned Strained Vegetables and a Study of Its Variation from Year to Year, J. Nutrition 12: 405 (Oct.) 1936.

3. Stearns, Genevieve, and McKinley, J. B.: The Conservation of Blood Iron During the Period of Physiological Hemoglobin Destruction in Early Infancy, J. Nutrition 13: 143 (Feb.) 1937.
4. Stearns, Genevieve, and Stinger, Dorothy: Iron Retention in Infancy, J. Nutrition 13: 127 (Feb.) 1937.
5. Mackay, Helen M. M., and Goodfellow, Lorel: Nutritional Anemia in Infancy, with Special Reference to Iron Deficiency, Medical Research Council, Special Report Series, No. 157, London, 1931. Elvehjem, C. A.; Siemers, Arlyle, and Mendenhall, Dorothy Reed: Effect of Iron and Copper Therapy on Hemoglobin Content of the Blood of Infants, Am. J. Dis. Child. 50: 28 (July) 1935.
6. Jeans, P. C.: Specific Factors in Nutrition, J. Pediat. 9: 693 (Nov.) 1936.
7. Caldwell, G. W.: The Nutritive Value of Strained Vegetables in Infant Feeding, J. Pediat. 1: 749 (Dec.) 1932. Schlutz, F. W.; Morse, Minerva, and Oldham, Helen: Vegetable Feeding in the Young Infant: Influence on Gastro-Intestinal Motility and Mineral Retention, Am. J. Dis. Child. 46: 757 (Oct.) 1933; The Influence of Fruit and Vegetable Feeding upon the Iron Metabolism of the Infant, J. Pediat. 3: 225 (July) 1933. Jeans.⁶

Strained Foods as Sources of Vitamin B₁.—That the quantities of vitamin B₁ supplied by vegetables might be important in infant feeding was suggested by the observations of Daniels, Byfield and Loughlin.⁸ These workers reported that 100 cc. of vegetable soup prepared from comminuted carrots, turnips and celery, and added to the milk feeding of a normal baby at the age of 4½ months, resulted in a marked stimulation of growth. The effects were comparable to those observed following the administration of an alcoholic extract of wheat embryo or an alcoholic extract of a similar vegetable mixture. The authors concluded therefore that increased growth was due to the vitamin B₁ content present in the alcoholic extract of the products investigated. Later Hoobler and other workers found that many infants apparently require more of the antineuritic factor than is ordinarily furnished by milk.⁹ They thought that an additional source of vitamin B₁ should be provided. If it is true that the vitamin B₁ intake of the normal infant under usual conditions is not far above the requirements of the infant, it may well be that the B₁ furnished by a number of commercially sieved foods would be significant in the nutrition of the infant.

Digestibility.—There is ample clinical evidence that commercially sieved foods are well tolerated by the average baby and that digestive upsets caused by these foods are rare. When vegetables are first given to the baby the digestive tract must gradually become accustomed to taking care of this type of food. During such transition periods rather large amounts of the vegetable food usually appear in the stools. The presence of such undigested material in an otherwise normal stool should not cause any fear that the baby is unable to tolerate these foods. Normal infants are able to digest sieved foods after the first few months of life. A factor that is favorable to the ease of digestion of commercially sieved foods is the fine state of division obtained with factory sieves having extremely small perforations. It is for this reason that strained foods also have an important place in certain therapeutic diets, particularly when these diets must be continued over long periods of time. Under such circumstances the commercially sieved foods, particularly vegetables and fruits, offer a considerable convenience to the consumer and may contribute important amounts of iron and of vitamins A, B₁ and possibly other factors to the diet.

Psychologic Importance of Variety in the Diet of the Infant.—An important reason for introducing a variety of foods during the first year of life is the favorable effect on the food habits of the child. As all mothers and pediatricians know, babies readily form habits with respect to foods that, once formed, are not easily broken. For this reason it has been considered important to introduce a variety of flavors and textures and to accustom the child to taking food from a spoon at as early an age as is possible. It has been reported regarding a group of 231 Boston infants that those children fed "solid foods" during the second and third months had better food habits and fewer food dislikes than others in whom such feeding was postponed until the seventh month.¹⁰

There are, of course, many pediatricians who undoubtedly would not be in favor of incorporating strained foods at as early an age as the second or third month. The introduction of strained foods in the baby's diet usually takes place at about the fifth or sixth month, although some pediatricians prefer to wait until later and others introduce some of these foods much earlier. It is important that foods be finely divided when first included in the diet of the infant, but psychologically it is equally important that babies become accustomed to foods of increasing coarseness as soon as they are physiologically able to do so.¹ There are many babies who are mistakenly fed strained fruits and vegetables throughout the period of infancy and even beyond. With such babies it is a common experience that they can be induced to eat coarser foods only with the greatest of difficulty when this is attempted later. It has been

reported that this difficulty may last for years in the home, although it is more readily overcome in the hospital or the nursery school where the child can be taught by example of other children, without the presence of its mother. For these reasons the physician and the discerning mother should not lose sight of the fact that it is important to replace strained foods by coarser foods usually around the sixth to the eighth month, at which time it is psychologically easy to effect the change.

Summary and Allowable Claims for Strained Fruits and Vegetables.—From the evidence that has been reviewed, the Council is of the opinion that strained fruits and vegetables, because of their physical structure, are useful foods for infant feeding and for certain types of therapeutic diets. These strained foods are probably significant as sources of vitamin B₁, iron and possibly other factors. They also contain vitamins A and C in amounts that under some conditions might be important; but, of course, some foods are better sources of these factors than others. There is also a psychologic aspect to the use of strained foods that is important. The baby at an early age should be taught to receive food from the spoon and to accept a variety of flavors and textures. The feeding of strained fruits and vegetables, properly selected to meet the needs of the individual infant at an age of about 4 to 6 months, is generally favored by pediatricians. The Council, of course, believes it to be a question for the physician to decide at what age a baby shall be fed strained foods and at what age it is considered desirable to replace such products with coarser foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

FORT WESTERN BRAND HAWAIIAN PINEAPPLE JUICE

Distributor.—Holmes-Swift Company, Augusta, Maine.

Packer.—Hawaiian Pineapple Company, San Francisco.

Description.—Canned unsweetened pineapple juice, the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

DAIRY MAID DOUBLE ACTION BAKING POWDER

Distributor.—Dairy Maid Division of Snow King Baking Powder Company, Cincinnati.

Description.—Baking powder, consisting of starch, sodium bicarbonate, sodium aluminum sulfate and calcium acid phosphate. The same as Snow King Double Action Baking Powder (THE JOURNAL, Oct. 13, 1934, p. 1151).

GEM BRAND OLEOMARGARINE

Manufacturer.—Swift and Company, Chicago.

Description.—Margarine prepared from coconut oil, skim milk, hydrogenated coconut oil, cottonseed oil or peanut oil, salt, and benzoate of soda 0.1%.

Manufacture, Analysis, Calories.—Same as Allsweet Brand Oleomargarine (THE JOURNAL, March 21, 1936, p. 1009).

NATION WIDE BRAND WHEAT CEREAL

Distributor.—Nation Wide Stores Company, Brockton, Mass.; St. Louis; Toledo, Ohio; Washington, D. C.; Warren, Pa., and Atlanta, Ga.

Packer.—Campbell Cereal Company, Minneapolis.

Description.—Wheat middlings, endosperm or farina, the same as Blue Ribbon Brand Wheat Cereal (THE JOURNAL, Sept. 21, 1935, p. 967).

8. Daniels, Amy L.; Byfield, A. H., and Loughlin, Rosemary: The Role of the Antineuritic Vitamin in the Artificial Feeding of Infants, Univ. Iowa Studies in Child Welfare, volume 1, No. 5, 1920-1921.

9. Hoobler, B. R.: Symptomatology of Vitamin B Deficiency in Infants, J. A. M. A. 81: 307 (Aug. 4) 1928; Use of Vitamin B in the Diet of Infants: Further Observations, ibid. 96: 675 (Feb. 28) 1931; Dennett, R. H.: Routine Use of the Vitamin B Factor in Infant Feeding, ibid. 92: 769 (March 9) 1929; Bloxson, A. P.: Vitamin B Requirements in Infancy, Am. J. Dis. Child. 37: 1161 (June) 1929; Waring, J. J.: Beriberi in Infants, ibid. 38: 52 (July) 1929.

10. Glazier, M. M.: Advantages of Strained Solids in the Early Months of Infancy, J. Pediatr. 3: 883 (Dec.) 1933.

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SATURDAY, APRIL 10, 1937

AMERICAN FOUNDATION STUDIES IN GOVERNMENT

In the organization section in this issue of THE JOURNAL appears an analysis of the report of the American Foundation Studies in Government on the subject of medical care. Ten thousand physicians who have been more than twenty years in practice and a number of more recent graduates were asked to present their views. Some 2,200 physicians answered and many wrote additional contributions, so that the compilers of the report considered some 5,000 letters in obtaining their cross section of medical opinion as to the status of medical care. The report is therefore a collection of the views of medical men, compiled under various headings, edited with a view to presenting all points of view as clearly as possible, supplemented with some interpretation and analysis by the editors. The report is worthy of careful and critical study. The American Foundation offers its review of the problems of medical care as seen by the physician without drawing any definite conclusions, yet certain indications seem to evolve logically and to these the medical profession may well continue to give serious consideration.

If there is one factor that comes out more obviously from this report than any other, it is the unlikelihood that sickness insurance, either voluntary or compulsory, will answer the problem of medical care suitably for the people of the United States. As Miss Esther Everett Lape,¹ director of the studies, herself stated in a recent issue of the *Atlantic Monthly*, "The medical man believes that compulsory insurance—with its stress upon more care in illness (as opposed to stress upon positive health), with its mass therapy, its regimentation both of doctors on the panel and of patients (in spite of devices to save the principle of the personal relation)—subtly and continuously lowers the quality of medical care, the quality of the medical man, the quality of the patient's conception of health." THE JOURNAL repeats that the outlook would seem to be best for a gradual improvement in medical care by the evolution that has been

going on for some time. The extension of preventive medicine, increased funds for preventive medicine and the improvement of medical knowledge are bound to affect the extent, the severity and the character of illness in coming years. Any fixed plan that failed to take the certainty of these advances into account would involve organization and expenditure far beyond the actual needs of the future. Government machinery once set up is hard to stop; it has the characteristics of the poisonous mushroom, growing profusely and destroying those who feed upon it.

The American Foundation report suggests a further expansion in present provisions for giving a better quality of medical service to more people by the extension of the facilities of tax-supported laboratories so as to make available to physicians generally and thereby to furnish to patients at a low cost many of the modern methods which constitute the difference between knowing and guessing in diagnosis. More and more hospitals are being equipped with competent clinical laboratory service, roentgenologic departments, physical therapy departments and serologic units. These methods are expensive and cannot be utilized to the fullest for all the patients who might benefit by their utilization without more permanent and more adequate financial support either to the hospitals directly or to the patients who require the services. Moreover, many states now provide, through their departments of health, laboratory services which may be utilized by the general practitioner for needy patients. Extension of such services should be of great benefit to the public health and should raise the general quality of medical care when a sufficient number of trained personnel becomes available.

As was revealed again in our recently published survey of hospitalization in the United States, the proprietary hospitals are fast disappearing. The nonprofit voluntary hospitals have been having great difficulty in many places to keep their heads above the quicksands of bankruptcy. High taxes, government regulation, and other political and economic changes have lessened greatly the philanthropic funds available for medical institutions. Periods of depression have kept vacant the rooms and the beds from which hospitals in the past derived excess income for the support of service to the indigent and the new group, of which the social service worker speaks glibly as the "medically indigent." THE JOURNAL would point out again that our hospitals are confronted today with problems much like those confronting the hospitals of Great Britain. The incomes of British hospitals have been diminished by these factors and, in addition, by the application of the compulsory sickness insurance system. The answer for this question, as suggested in Great Britain, may be government aid for the hospitals in relation to the amount of service rendered to those unable to pay for it. At the same time these institutions must retain sufficient independence to permit growth and expansion

1. Lape, Esther Everett: The Health of the Nation, *Atlantic Monthly* 159: 463 (April) 1937.

rather than reversion to the sluggishness that seems invariably to affect institutions under complete and permanent state control. Group hospitalization plans, so intensively agitated in this country by the Rosenwald Foundation and more recently by the American Hospital Association, are today actually nothing but an interesting experiment affecting a small part of the population, if not merely a "stop-gap" for the present critical situation in hospital finance.

The 1,500 page report of the American Foundation Studies in Government concludes with a chapter devoted to limited state medicine and private practice as representing the gradual evolution that is taking place in this country. As was pointed out some years ago by Dr. Thomas Parran,² Surgeon General of the United States Public Health Service, in an article published in *THE JOURNAL*, many of the functions of medical care in many states are already largely under the control of the state. The amount of state medicine varies from a few per cent in some states to 25 or 35 per cent in others. As syphilis, cancer and pneumonia begin to be recognized as public health problems, and as heart disease trembles on the brink of such recognition, we approach even more closely to a recognition that the state is occupying an increasing position of importance in medical care. With workmen's compensation laws, industrial medicine and the various forms of group practice and contract practice invading significant portions of the medical field, organized medical practice also makes tremendous inroads into private medical care. The evolution must be controlled by the medical profession.

No system of medical practice can succeed without the cooperation of the medical profession. Recognizing this fact, the American Foundation report leads to the suggestion for a secretary of health in the President's cabinet as a necessary coordinating authority. The Board of Trustees of the American Medical Association has emphasized its view that a health department subservient to a welfare agency set up for the distribution of funds to the indigent and to find work for the unemployed would be an inadequate recognition for the real place which health should occupy in any government. From ancient Greeks and Romans, through the statesmen of the middle ages, down to modern times, the greatest leaders have stated that the care of the public health should be the first interest of the state. Can it be that American statesmen of today fail to appreciate the essential truth of this governmental aphorism, evolved from thousands of years of human experience? The mere fact that the present budget of our government for preventive medicine and public health cannot compare favorably with the amount of money spent on the dole has been offered as one reason for keeping public health in a subservient position. Perhaps the proportions that now exist may some day be reversed

—a time may come when the nation will spend \$4,000,000,000 a year on preventive medicine and \$100,000,000 on unemployment and the dole. It will no doubt then be a far happier nation.

Fundamental to every consideration of medical service is knowledge of its present adequacy and availability. Doctors who are in intimate contact with the problem probably realize better than any one else how much adequate medical care is actually available. Both terms are difficult to define. If adequate medical care includes a periodic physical examination twice each year, even doctors do not get it—or want it—now. If adequacy involves the attendance of a physician for every vague ache or pain or every rise of a half degree of temperature, the vast majority of our people do not, and probably never will, receive adequate medical care. They do not need that kind of medical care.

If adequacy is the same for New Mexico, South Dakota and Mississippi as for New York City and Chicago, the differences are apparent. But is there likely ever to be equalization? A letter from a country practitioner in Kentucky reveals that in some sections of that state the people do not seem to be especially interested in getting a better quality of medical care than they now have. Yet the social service worker considers them benighted and hints that they are moronic. Is it the duty of the state to give them perfect medical care and make them like it? Adequate medical care cannot be standardized for distribution until many other fundamental needs of our people are satisfied.

The question of adequacy and availability of medical service is closely correlated with the determination of indigence and "medical indigence." The medical profession for many years has prided itself on the fact that it gives of its services freely to all who require them without question when the inability of the individual to pay is apparent. Then depression threw such a burden on some members of the medical profession that they themselves approximated the indigent class. With the advancement of medical science and the increasing cost of giving to all the people the most that medicine can offer, the borders of indigence have been extended upward to create a new class called "medically indigent." In addition there is the group that wants to pay at least a part of the costs of medical service. Physicians cannot wave aside all consideration of money in relationship to medical service. These questions intimately affect the quality of service that can be rendered. The amount of service that has been given to the people in recent years by the medical profession and by the medical facilities of this country runs into many millions of dollars. An increasing burden has fallen on the upper middle class because the exceedingly rich tend to become fewer and fewer. The problem of balancing the medical budget of the future is going to be as difficult as the balancing of the budgets of the nations.

The well informed medical readers of this report will observe that some physicians noted for their opposition

2. Parran, Thomas: Public Medical Care in New York State, *J. A. M. A.* 101: 342 (July 29) 1933.

to the policies of organized medicine express views in their letters to the American Foundation which they have perhaps, because of modesty or reticence, concealed during the agitations of recent years. If one studies carefully the list of those who contributed to the report, it becomes evident that members of medical school faculties, health department officials and specialists dominate the picture. They write on state medicine, insurance, public laboratories and group practice, subjects which most concern the general practitioner. This dominance is perhaps responsible for the impression, which seems to evolve quite naturally from the report, that the future of medicine lies in the medical schools and that many of our present evils would be corrected if the medical schools could be given supervision over standardization of hospitals, control over organized medical practice, and in general management of medical education and the distribution of medical service. The medical schools find themselves at the present time in a difficult situation. There are increasing demands for higher standards; contributions and endowments are lessened; enforced diminution is likely in the amounts of students' fees. It has taken almost a quarter of a century of strenuous effort on the part of organized medicine to raise the standard of medical education in this country. It has had constantly to battle political, personal and proprietary interests in medical schools themselves. It should be obvious that the schools cannot be relied on to raise and to maintain suitable standards in medical education. The utter inability of medical schools in universities that have departments administering medical service to control even the standards of such service in their own schools is an indication of how futile it would be to depend on the medical schools to develop and maintain distribution of medical service for all the people in the future.

If any single appellation is to be given to this report, it is "thought provoking." The reader must be impressed by the obvious earnestness, sincerity and desire to aid of the great majority of those who wrote the letters. These actual records of personal experience compare most favorably with previous compilations of inspired statistics collected by the economists and social service workers who had preconceived opinions and predigested notions as to what ought to be done with medical practice. This report did not set out to prove that compulsory sickness insurance would solve the medical problem. Neither did it set out to prove that doctors alone could solve all our problems. It was designed to present an adequate picture of the American medical scene with the apparent realization that diagnosis must precede prognosis and treatment. Its most important conclusion is that "planning" and not "a plan" is the answer. Leaders of medical thought and opinion know that intelligent planning will maintain and conserve the real values inherent in good medical practice.

SALIVARY IMMUNITY

The recent European epidemic of malignant diphtheria¹ ("diphtheria gravis"), a specific infection refractory to even massive doses of diphtheria antitoxin, has turned the attention of German bacteriologists to the present lack of knowledge of the local non-serologic buccal defenses against this disease. Contrary to conventional theories of immunity, Hermann Dold² of Tübingen found that normal human saliva contains enzymic factors that will not only inhibit the multiplication of diphtheria bacilli in vitro but often kill these micro-organisms within a few hours. Virulent diphtheria bacilli not killed by contact with this normal salivary antiseptic are almost invariably transformed into avirulent types. Weigmann and Koehn³ found that these transformed "mutants" will breed true as apparently true pseudodiphtheria bacilli for at least ten transplants in ordinary culture mediums.

The presence of these "inhibins," or "bacteria-transforming enzymes," in normal saliva has been confirmed by a study of salivary inhibitions and transformations of numerous other bacterial species. Wehrse⁴ for example found that, in the presence of normal human saliva, hemolytic streptococci are often killed in from five to six hours and, if not killed, are almost invariably transformed into nonhemolytic variants. Pesch and Damm⁵ report a similar bactericidal and transforming action on type I and II pneumococci. While the carbohydrate capsule is not demonstrably altered in specificity by the action of normal saliva, mouse virulence is almost completely destroyed.

The "inhibins" in normal saliva are more or less completely removed by Seitz filtration; are nondiffusible through animal membrane and are destroyed quantitatively by heating saliva to 56 C. for thirty minutes. Dold, Lächele and Hsing,⁶ however, have published evidence that the "inhibins" are not identical with the lysozymes of Fleming. Whether or not these "inhibins" are salivary enzymes, epithelial products or antagonistic factors formed or secreted by normal buccal saprophytes has not yet been determined.

The effects of surgical antiseptics, mouth washes and smoking on this natural salivary immunity have not yet been studied. Whether or not the normal salivary bacteriostat is altered quantitatively or qualitatively as a result of bodily chilling is a problem of pressing clinical interest. In this connection, Ignatius⁷ was able to demonstrate presumably identical "inhibins" in normal nasal secretions. This normal nasal bacteriostat

1. Diphtheria Gravis, editorial, J. A. M. A. **99**: 227 (July 16) 1932.
2. Dold, Hermann: Zentralbl. f. Bakt. **135**: 69 (Oct. 1) 1935.
3. Weigmann, F., and Koehn, A.: Ztschr. f. Hyg. u. Infektionskr. **118**: 507, 516 (No. 5) 1936.
4. Wehrse, E.: Dissertation, Cologne, 1935.
5. Pesch, K. L., and Damm, Rolf: Ztschr. f. Hyg. u. Infektionskr. **118**: 1 (No. 1) 1936.
6. Dold, H.; Lächele, W., and Du Dscheng, Hsing: Ztschr. f. Hyg. u. Infektionskr. **118**: 369 (No. 4) 1936.
7. Ignatius, A.: Ztschr. f. Hyg. u. Infektionskr. **118**: 445 (No. 4) 1936.

was absent from the nasal discharges of patients suffering from common colds. The possible effect of this normal upper respiratory "inhibin" on filtrable viruses *in vitro* has not yet been studied.

EFFECT OF GONADOTROPIC SUBSTANCE AND ESTROGENS ON BLOOD CALCIUM

In recent investigations on the function of the anterior pituitary, extracts have been obtained that cause histologic changes in the parathyroids and a rise in blood calcium, in addition to other effects. This has been adduced as evidence for the existence of a special parathyrotropic principle.¹ Conclusive proof of the existence of such a substance has been lacking, however, owing to the many difficulties inherent in this type of research; extracts of the pituitary containing single principles have not yet been obtained and the changes observed may be secondary to effects on organs other than the parathyroids.

Important information on this point has now been supplied by recent experiments of Riddle and Dotti² on the effects of a number of endocrine principles on the blood calcium; the observations of these workers appear to have far reaching implications. Anterior pituitary extracts containing follicle-stimulating and thyrotropic principles were found to increase the blood calcium in pigeons. Gonadotropic substance alone from mare's serum also produced this effect; the latter was prevented by castration but not by hypophysectomy or thyroidectomy. The effect was obtained more readily in females than in males. Hypophyseal extracts containing the lactogenic or growth factors but little or no gonad-stimulating substance did not raise the calcium content of the blood. Because of the evidence indicating that the observed effect was mediated through the gonads, Riddle and Dotti then investigated estrogens, androgens and progesterone.

Large doses of two commercial estrogenic preparations said to contain theelin were found to increase the serum calcium. Dihydrotheelin benzoate (estradiol benzoate) had this action to a less degree; dihydrotheelin and theelin were next in effectiveness. Large doses of progesterone had only a slight calcium-raising effect. Three androgens, androstenediol, testosterone and testosterone oxime, did not have this property. These substances were tested on pigeons, rats and dogs, male and female; some were normal, others hypophysectomized or castrate, still others both hypophysectomized and gonadectomized or thyroidectomized and castrate. The blood calcium raising effect was noted in all when estrogen was administered in sufficient dosage for a sufficiently long time.

Whether or not the parathyroid plays a part in this response has not yet been determined; nevertheless, the

work of the Cold Spring Harbor investigators indicates that much more satisfactory evidence than has been provided so far will be necessary before the existence of a pituitary parathyrotropic principle can be accepted. This illustrates anew the complexity of glandular interrelations and exemplifies the difficulties of endocrine research. It is important to emphasize that the significance of these observations with regard to the clinical application of gonadotropic and estrogenic products that raise the blood calcium remains to be determined.

Current Comment

TAX RETURNS UNDER THE SOCIAL SECURITY ACT OVERDUE

The Bureau of Internal Revenue calls attention to the failure of many employers who have less than eight employees in their service to file the tax returns for the month of January required by the federal Social Security Act. Monthly returns must be filed by every employer who has one or more employees in his service, other than domestic servants in his private home or agricultural labor, except certain institutions and organizations that are specifically exempted by the act. Physicians who are employers in default should take prompt action to make the required returns. Hospitals, other than charitable hospitals, must make the same returns as other employers, and a hospital that claims exemption as a charitable hospital must apply to the local collector of internal revenue for official classification as a tax-exempt institution. State, county and other medical associations that are employers of one or more employees are liable for this tax, unless they are organized and operated exclusively for charitable, scientific, literary or educational purposes and no part of their net earnings inures to the benefit of any private shareholder or individual. Such an association, if claiming exemption, must obtain through the local collector of internal revenue verification by the Commissioner of Internal Revenue of its tax-exempt status. Although the tax return for January is past due, the Commissioner of Internal Revenue will not penalize those taxpayers who make their returns without further delay and show reasonable cause for failing to file them within the time allowed by law; however, the delinquent taxpayer must attach to his January return an affidavit setting forth the reasons for his delinquency. Without a just excuse and if a return is not more than thirty days late, a penalty accrues equal to 5 per cent of the taxes due at the time of the return. For each additional thirty days or fraction thereof that the taxpayer is delinquent, an additional 5 per cent penalty accrues, with a maximum penalty of 25 per cent of the taxes. These penalties are in addition to interest on the unpaid tax at the rate of 6 per cent a year. They are independent of the penalties provided for employers or employees who attempt to evade or defeat the collection of taxes or who wilfully fail to perform the duties imposed on them by the law. Returns for February were due on or before March 31. A similar return for each subsequent month is due on or before the last day of the month following that on which it is made.

1. The literature has been reviewed by Collip, J. B.: Chapter VII of *Glandular Physiology and Therapy*, Chicago, American Medical Association, 1935.

2. Riddle, Oscar, and Dotti, L. B.: Blood Calcium in Relation to Anterior Pituitary and Sex Hormones, *Science* 84: 557 (Dec. 18) 1936.

Form SS-1 for the return will be supplied by the local collector of internal revenue on request. The return, together with the taxes due, must be sent to the collector of internal revenue of the district in which the employer's principal place of business is located. It should not be sent to the Bureau of Internal Revenue in Washington or to any officer of the Social Security Board. Employers who have not filed the employer's application for identification number should do so when filing their first returns. Form SS-4 for that purpose may be obtained from any post office or from the office of the local collector of internal revenue.

MACFADDEN SAYS "I TOLD YOU SO" ABOUT SYPHILIS

Bernarr Macfadden says "I told you so" in an editorial in *Liberty* for April 7. The big shot of the big muscle boys claims that the United States Public Health Service, the medical profession, and public health agencies in general are not doing anything new when they promote a drive against syphilis. "Way back when," he printed an article on this subject by Senator Royal S. Copeland in *Physical Culture*. In his present editorial in *Liberty* he repeats some of the fallacies he exploited so boldly in the good old days. In the treatment of syphilis, he recommends fasting two weeks on water alone followed by "a full raw milk diet." So while *Coronet* says that milk causes cancer, "body love" Bernarr uses raw milk for syphilis. It seems this cleanses the blood stream. Toward the end of his editorial the pompadoured physical culturist writes: "The more complicated scientific measures adopted by many physicians may be an improvement over these simple measures but no progressive up-to-date physician who has tested them will deny their value." That lets us all out! But then no up-to-date progressive physician would even think of Mr. Macfadden and scientific medicine in the same set of thoughts.

MULLEIN WEEDS AND BALD HEADS

Early in March, George Jean Nathan, a dramatic critic, no longer young but widely known in a previous generation for the acerbity of his wit, his comely appearance and his association with Mr. H. L. Mencken, indicated that he had relieved himself of baldness by the application to his scalp of tincture of mullein. As a result, both Mr. Nathan and *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* have been deluged with inquiries as to the exact value of this product. Mullein is a common weed. Both the leaves and the flowers have been used since time immemorial as home remedies. An infusion of the flowers was at one time recommended as a home remedy for inflammations of the upper respiratory tract. In Germany the oil of mullein has been used for inflammation of the mucous membranes and also for hemorrhoids. Today mullein is generally recognized by scientific pharmacists as a little used and unessential drug, largely inert, and of little real value except as a demulcent and emollient. With Mr. Nathan it is always hard to know when he is in earnest. From his previous reputation for truth and veracity as well as sagacity, it seems doubtful that he recommended mullein as a hair tonic except with his tongue in his cheek.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Medical Meeting at Birmingham, April 20-22.—The Medical Association of Alabama will hold its annual meeting at the Tutwiler Hotel, Birmingham, under the presidency of Dr. Lloyd Noland, Fairfield, and with the Jefferson County Medical Society acting as host. Among others, the following will be on the program:

- Drs. Lee F. Turlington and Clifford Lamar, Birmingham, Contraception, Its Need, Purpose and Accomplishment.
- Dr. Melson Barfield-Carter, Birmingham, Paget's Disease.
- Dr. John Day Peake, Mobile, Report of 189 Cases of Carcinoma of the Cervix.
- Dr. Ernest Vernon Stabler, Greenville, Clinical Importance of Simple Cysts of the Ovaries.
- Dr. Grosbeck F. Walsh, Fairfield, Psychogenic Factors in Disease.
- Dr. Seale Harris Jr., Birmingham, Cardiovascular Syphilis.
- Dr. Hugh Dent Johnson, Montgomery, Presacral Sympathectomy in Dysmenorrhea.
- Dr. H. Earle Conwell, Birmingham, Emergency Traction for Safe Transportation in Fractures of the Long Bones.
- Dr. W. Groce Harrison Jr., Birmingham, The Mechanism of Congestive Heart Failure.
- Dr. Clarence R. Bennett, Eufaula, Angina Pectoris.
- Dr. David B. Snelling, Montgomery, Protamine Insulin in the Treatment of Diabetes Mellitus.
- Dr. James B. McLester, Birmingham, The Functional Patient.
- Dr. James O. Morgan, Gadsden, Mucocoele of the Appendix.
- Dr. Porter P. Vinson, Richmond, The Bronchoscopic Management of Pulmonary Abscess.
- Dr. Hamilton W. McKay, Charlotte, N. C., Certain Phases of Pediatric Urology.

Dr. Frank H. Lahey, Boston, will deliver the Jerome Cochran Lecture Wednesday morning on "Carcinoma of the Colon and Rectum." A public meeting Wednesday evening will be addressed by Drs. Charles Gordon Heyd, New York, President, American Medical Association, on "The Contribution of the American Medical Association to the Public Health" and Edgar W. Norris Jr., Hot Springs National Park, Ark., on "Syphilis." At a meeting of the Birmingham Eye, Ear, Nose and Throat Club, April 20, Dr. James B. Costen, St. Louis, will discuss "Diagnosis of Neuralgia and Ear Symptoms Associated with Dysfunction of the Mandibular Joint."

ARIZONA

Joint Public Health Meeting.—The Arizona and New Mexico public health associations will hold a joint meeting in Phoenix, April 12, prior to the annual session of the Western Branch of the American Public Health Association, April 13-15.

Tuberculosis Association.—Dr. Fred G. Holmes, Phoenix, was chosen president of the Arizona Anti-Tuberculosis Association at its annual meeting in March, at which meeting a report was presented on the tuberculosis program among high school students in Phoenix. It is expected that the program will be continued until June.

CALIFORNIA

Bureau of Venereal Diseases.—Dr. Malcolm H. Merrill, in charge of the syphilis clinic, University of California Hospital, San Francisco, has been made chief of the bureau of venereal diseases of the state department of public health. The bureau was recently reestablished with funds made available through the social security act. It was founded in 1917 but had been discontinued in 1920 on account of lack of funds. Under the new set-up the bureau will carry out the state's program in the national campaign against venereal disease.

Lectures on Medical History.—The University of California Medical School is presenting a series of lectures on the medical history of California. The first discussion, March 25, by Dr. Henry Harris, Berkeley, dealt with the selection of the site of the medical school. Other lecturers in the series include:

- Dr. Edgar L. Gilcreest, San Francisco, March 31, Dr. H. H. Toland and His Work.
- Dr. Robert T. Legge, Berkeley, April 7, Life and Career of Dr. Robert McLean.
- Dr. Wallace I. Terry, San Francisco, April 14, Dr. T. W. Huntington.
- Chauncey D. Leake, Ph.D., San Francisco, April 21, Dr. James Black.
- Dr. Herbert C. Moffitt, San Francisco, April 28, Dr. William Watt Kerr.

CONNECTICUT

Medical Information Bureau.—The Hartford Medical Society and the Hartford County Medical Association are planning to establish a medical information bureau, according to the *New England Journal of Medicine*, to supply to the public adequate and correct information on medical matters through the press and radio. Five members from the city organization and four from the county society, whose services will be entirely voluntary, will manage the bureau. It will be patterned after that of the New York Academy of Medicine.

FLORIDA

Committee on Venereal Disease Control.—A committee on venereal disease control has recently been appointed to represent the Florida Medical Association. Members are Drs. Elijah T. Sellers, Jacksonville, chairman; Joe I. Turberville, Century; Robert D. Ferguson, Ocala; Alvin L. Mills, St. Petersburg; Louis M. Orr Jr., Orlando, and Roy J. Holmes, Miami.

Spring Meeting.—The Florida Midland Medical Society will hold its spring meeting at the Dixie Grande Hotel, Bradenton, April 29, with the following speakers, among others:

Dr. John T. Moore, Tampa, Differential Diagnosis of Acute Abdominal Conditions.

Dr. Howard V. Weems, Sebring, Results of Elliott Treatment in Thirty-Three Cases.

Dr. Rosalie Slaughter Morton, Winter Park, Modern Medicine in Ancient Iran.

Dr. Louis B. Mount, St. Petersburg, Diagnosis of Some Common Contagious Diseases of the Skin.

Dr. Benjamin F. Hart, Winter Park, Low Cesarean Section.

Dr. Joseph Halton, Sarasota, Tumors of the Lung.

Dr. William D. Sugg, Bradenton, The Unusually Placed Appendix.

Dr. Duncan T. McEwan, Orlando, Infectious Abortions: Pathology and Treatment.

Dr. Gideon Timberlake, St. Petersburg, Diseases of the Prostate.

Dr. Fred H. Albee, Venice, will address the dinner session in the evening on "Reconstructive Surgery."

IDAHO

Personal.—Andrew Warner, D.D., Twin Falls, has been placed in charge of the administration of the Idaho State Mental Hospital at Blackfoot. Dr. Charles R. Lowe will continue in charge of the medical and surgical work at the hospital, it is reported.

Society News.—Dr. Paul W. Johnson, Lewiston, addressed the North Idaho Medical Society at a meeting in Lewiston, recently; his paper was entitled "X-Ray Examination of the Gallbladder." Dr. Willard O. Clark, Lewiston, was elected president to succeed Dr. Paul G. Haury, Lewiston; Dr. Albert B. Pappenhagen, Orofino, vice president, and Dr. Joseph E. Baldeck, Genesee, secretary.

ILLINOIS

Society News.—Chauncey D. Leake, Ph.D., professor of pharmacology, University of California Medical School, discussed "Central Nervous System Depressant Drugs" before the Sangamon County Medical Society, Springfield, April 1. —The Peoria City Medical Society will be addressed April 20 in Peoria by Drs. Robert E. Plunkett, Troy, N. Y., general superintendent of tuberculosis hospitals, New York State Department of Health, on "The Role of the Family Physician in the Control of Tuberculosis" and Maxim Pollak, "Results of Tuberculosis Control in Peoria." —Dr. James H. Hutton, Chicago, addressed the St. Clair County Medical Society, East St. Louis, March 4, on "Endocrine Disorders."

Chicago

Lecture Postponed.—The first lecture under the Elizabeth McCormick Child Research Grant, which was to have been delivered April 16 by Dr. Alfred H. Washburn, director of the Child Research Council of the University of Colorado, Denver, has been postponed. This is a new grant not to exceed \$1,000 to be given annually to the Institute of Medicine of Chicago by the Elizabeth McCormick Memorial Fund.

University News.—Plans are under way to establish a medical historical museum at Loyola University School of Medicine. A portrait of the late William C. Austin, Ph.D., professor and head of the department of physiologic chemistry at the school, has been presented to the school's library. —An evening course in physical therapy began at Northwestern University Medical School, April 5, and will continue until June 15. Further information may be obtained from Dr. John S. Coulter at Northwestern.

Dr. Carlson Lectures on Endocrines.—Dr. Anton J. Carlson, professor and head of the department of physiology, School of Medicine, Division of Biological Sciences, University

of Chicago, discussed the control of the endocrine glands at Loyola University School of Medicine, April 2. The lecture was the ninth of an annual series established in 1929 by Alpha Omega chapter of Phi Beta Pi medical fraternity in memory of the late Dr. Samuel A. Matthews, who was professor and head of the department of physiology, pharmacology and therapeutics at Loyola.

IOWA

Society News.—Dr. William F. Snow, New York, among others, will address the Pottawattamie County Medical Society, April 12, in Council Bluffs; his subject will be "A Proposed Program for Venereal Disease Control." Dr. Edward N. Cook, Rochester, Minn., among others, addressed the society March 22 on "The Use of Mandelic Acid in the Treatment of Urinary Infections."

KANSAS

Executive Secretary for Sedgwick County.—Mr. Jack Austin, Blackwell, Okla., has been appointed executive secretary of the Sedgwick County Medical Society, Wichita, succeeding Mac F. Cahal, who resigned to become field secretary of the American Roentgen Ray Society, American Radium Society, Radiological Society of North America and the American College of Radiology. Since 1935 Mr. Austin has been city editor of the *Blackwell Tribune*.

Neuropsychiatry in General Practice.—The third annual graduate course on neuropsychiatry in general practice will be held at the Memminger Clinic, Topeka, April 19-25. In addition to members of the clinic, the guest speakers will be:

Dr. Franklin G. Ebaugh, professor of psychiatry, University of Colorado School of Medicine, Denver.

Dr. Winchell McK. Craig, associate professor of neurosurgery, University of Minnesota Graduate School of Medicine, Rochester.

Dr. James W. Kernohan, associate professor of pathology, University of Minnesota Graduate School of Medicine, Rochester.

KENTUCKY

Society News.—At a meeting of the Third District Medical Society in Bowling Green, March 17, the speakers included Drs. William R. Cate and Robert E. Sullivan, Nashville, Tenn., on "Thyrototoxic Heart Disease" and "Treatment of Acute Upper Respiratory Infections" respectively. —A bicounty medical society for Bracken and Pendleton counties was organized at a meeting in Falmouth, March 18. Dr. James M. Stevenson, Brooksville, was elected president and Dr. William A. McKenney, Falmouth, secretary. —Dr. Russell E. Teague, Paducah, addressed the McCracken County Medical Society, Paducah, March 24, on control of syphilis. —Dr. Caspar L. Woodbridge, Middlesboro, presented a paper on traumatic corneal ulcer at a meeting of the Bell County Medical Society, Middlesboro, March 19.

LOUISIANA

Personal.—Sir Aldo Castellani has returned to his duties as professor of tropical medicine at Louisiana State University Medical Center, New Orleans. Dr. Castellani was in charge of the health and sanitation of the Italian army during the campaign in Ethiopia.

Society News.—At a meeting of the East and West Feliciana Bi-Parish Medical Society in Jackson, February 3, Drs. H. Guy Riche, Baton Rouge, discussed "Heart Disease in Pregnancy"; Edgar Burns, New Orleans, "Stone Formation in the Urinary Tract," and Guy L. Odom, Jackson, "Artificial Therapy in Paresis or Neurosyphilis." —The LaFourche Valley Medical Society was addressed in Thibodaux, February 10, by Drs. John G. Menville, New Orleans, on "Treatment of Infection of the Lower Urinary Tract" and Percy H. Le Blanc, Donaldville, "Bacteriophage as a Therapeutic Agent." —Dr. Sydney Jacobs, New Orleans, among others, addressed the Tuberculosis and Public Health Association of Louisiana, January 27, on "The Present Outlook for the Tuberculous Patient." —Dr. John O. McReynolds, Dallas, Texas, addressed the New Orleans Eye, Ear, Nose and Throat Club recently on various ophthalmic operations.

MAINE

Radium Placed at Disposal of City.—A supply of 110 mg. of radium has been made available to the city of Portland for use in the treatment at the Farrington Hospital of cancer patients who are without funds. The radium is the property of Dr. Adam P. Leighton, who is lending it as a contribution to the national campaign against cancer. Dr. Leighton is secretary of the state board of registration in medicine.

MARYLAND

Society News.—Dr. Claud C. Smink discussed chronic arthritis before the Maryland Academy of Medicine and Surgery, Baltimore, March 16. Other speakers included Drs. Thomas B. Aycock on "Present Status of the Surgical Treatment of Hypertension" and Edgar B. Friedenwald and George B. Mansdorfer, "Spontaneous Pneumothorax."

MASSACHUSETTS

Prize for Paper on Gynecology.—The New England Obstetrical and Gynecological Society has recently established an annual prize of \$250 for the best essay on either obstetrics or gynecology. Interns serving at any hospital in New England having an obstetric service are eligible. Members of the executive committee of the society will act as judges.

Lectures on Alcoholism.—The social service committee of the Boston City Hospital and the advisory committee for the study of alcoholism began a series of lectures on alcoholism at the Mallory Institute of Pathology, March 15. Coming lectures include:

Dr. Leo Alexander, April 12, Neuropathological Aspects of Alcoholism.
Dr. Timothy Leary, April 26, Alcoholism as a Medicolegal Problem.
Miss Mildred G. Gray, May 3, assistant in pharmacology, Boston University School of Medicine, The Physiological Effects of Alcohol.
Dr. Jackson M. Thomas, May 10, Alcoholism and Mental Disease.
Dr. Robert E. Fleming, May 17, Treatment of Chronic Alcoholism.
Miss Mabel R. Wilson, director of medical social service, Boston City Hospital, May 24, Alcoholism as a Problem in Medical Social Service.

The advisory committee is sponsoring a WPA survey of alcoholic patients at the hospital.

MICHIGAN

Proposed National Department of Health.—The Michigan State Medical Society adopted a resolution recommending, in the event of any reorganizing process affecting the U. S. Public Health Service, the creation of a department of public health in the national government to include all activities in the field of preventive medicine now performed by the various departments. This action was taken in support of a similar action of the Board of Trustees of the American Medical Association at a meeting early in January. The society further recommends that the supervision and direction of such a department should be in the hands of a competently trained physician, experienced in executive administration.

Society News.—The Washtenaw County Medical Society and the Washtenaw County Bar Association were guests of the Ann Arbor Lawyers Association, February 18; Lieut. Harold Mulbar of the Michigan State Police discussed the lie detector.—Dr. Paul B. Magnuson, Chicago, discussed "Fractures of the Neck of the Femur" before the Kalamazoo Academy of Medicine, February 16.—Dr. Herbert Worley Kendell, Dayton, Ohio, discussed "Present Status of Fever Therapy" before the Calhoun County Medical Society, Battle Creek, March 2.—Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, March 3, addressed the Genesee County Medical Society on acute conditions in the lower part of the abdomen in women.

MISSOURI

Dr. Sachs Honored.—Dr. Ernest Sachs, professor of clinical neurologic surgery at Washington University School of Medicine, St. Louis, since 1919, when the post was created, was honored at a dinner at the Jefferson Hotel, March 20. A silver plaque bearing a reproduction of his favorite surgical instrument was presented to him and the following inscription: "From the Fellows he has trained in neurologic surgery during his first twenty-five years of continuous teaching, 1912-1937." Major Philip P. Green, U. S. Army, Hot Springs National Park, one of the twenty graduate fellows whom Dr. Sachs has trained, made the presentation. Dr. Leonard T. Furlow, St. Louis, another of the group, presided at the dinner, and the speakers included Drs. Barney Brooks, Nashville, Tenn., and Evarts A. Graham and Sidney I. Schwab, St. Louis. Dr. Sachs, who is 58, was graduated from Johns Hopkins University School of Medicine in 1904 and holds the first professorship of neurologic surgery created in any American university.

Gifts for Cancer Research.—St. Louis University School of Medicine, St. Louis, has received two gifts from anonymous donors to aid in cancer research and treatment, according to the *St. Louis Globe Democrat*. One, consisting of 705 acres of farm land, valued at about \$75,000, in Mississippi County, Ark., will not be available for use by the school until the death of the donors; the second is \$7,000 to purchase radium for the benefit of indigent cancer patients. According to the

report, the fund will be sufficient to purchase 180 mg. of radium in the form of needles and accessory equipment with servicing for five years. It will be named the Margaret and Elizabeth Radium Service and is open to donations from other persons. This will be the first radium the school has owned; its supply has been rented in the past. The income from the land will be used to establish a foundation for research on cancer. Both gifts will make it possible to augment the cancer program at the school, which is under the supervision of Dr. Albert E. Casey, associate professor and chairman of the department of pathology and other members of the cancer study committee: Drs. Charles F. Sherwin, chairman, Goronwy O. Brown, John Grey Jones, Lex G. McCutcheon and Norman Tobias.

MONTANA

Personal.—Dr. Charles E. K. Vidal has retired as medical superintendent of the Montana State Tuberculosis Sanatorium, Deer Lodge, effective May 1. He has been associated with the sanatorium for eighteen years. Dr. Vidal was honored at a meeting of the Mount Powell Medical Society, March 15, in Galen.

NEVADA

Society News.—Dr. Louis E. Lombardi, Reno, was elected president of the Washoe County Medical Society recently, and Dr. Turyman C. Harper, Reno, secretary.

Annual Registration Due May 1.—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the Board of Medical Examiners, on or before May 1, a tax of \$2. Failure to do so operates to forfeit a licentiate's right to practice medicine, and his license to practice can be reinstated thereafter only on the payment of a \$10 penalty.

NEW JERSEY

Mosquito Control Report.—The New Jersey Mosquito Extermination Association announces that it will receive applications for copies of the proceedings of its annual meeting up to May 10. Remit 75 cents to the secretary, Thomas J. Headlee, State Experiment Station, New Brunswick. The usual review of mosquito control work throughout the world will be included. Publication is scheduled for June 10.

Graduate Lectures.—A series of graduate lectures in medicine is being presented for the Atlantic and Cape May county medical societies at the Hotel Chalfonte, Atlantic City, with Philadelphia physicians as the speakers. The list is as follows:

Dr. David Riesman, Recent Advances in Medicine, March 10.
Dr. John A. Kolmer, Serum Therapy, March 17, and The Present Status of Vaccine Therapy, March 24.
Dr. Richard A. Kern, Present Day Use of Nonspecific Protein Therapy, March 31.
Dr. John Claxton Gittings, Prevention of Nutritional Disorders and Deficiency Diseases, April 7.
Dr. Ralph M. Tyson, Prevention of Communicable Diseases in Childhood, April 14.

NEW YORK

Personal.—Dr. John T. Howell, Newburgh, recently completed fifty years in the practice of medicine. He has been president of both the Orange County and Newburgh Bay medical societies and has written a history of the county society. He organized the Newburgh Medical Library and has been its only librarian, according to the *New York State Journal of Medicine*.

Unlicensed Practitioner Convicted.—The state board of medical examiners recently reported that Charles Richardson, Rochester, was convicted of practicing without a license January 29 and sentence was suspended. Newspapers reported that Richardson was the proprietor of the "Richardson Sanatorium," where he happened to give medical advice to an investigator for the state.

New York City

Seventh Harvey Lecture.—Dr. Cyril N. H. Long, professor of physiologic chemistry, Yale University School of Medicine, New Haven, Conn., will deliver the seventh Harvey Society Lecture of the current series at the New York Academy of Medicine, April 12. His subject will be "The Influence of the Pituitary and Adrenal Glands on Pancreatic Diabetes."

Hospital News.—The Arthur B. Duell Facial Palsy Clinic has been established at the Manhattan Eye, Ear and Throat Hospital in memory of the late Dr. Duell, who founded a clinic for facial palsy in the hospital in 1933 and was in charge of it until his death. Dr. Thomas G. Tickle, a former associate of Dr. Duell, is in charge of the clinic and will offer a course in the surgical technic and treatment of facial paralysis.

Physicist Killed by X-Ray Machine.—Wesley M. Coates, Ph.D., physicist of Crocker Institute for Cancer Research, Columbia University, was killed instantly, March 20, when he accidentally came in contact with the power lines of the new million-volt x-ray machine installed in Presbyterian Hospital. Dr. Coates received his academic training at the University of California, was a member of the department of physics at Columbia, and during the past year had assisted in the installation of the new x-ray apparatus, which was completed only a few weeks ago. He was about 35 years of age.

Lectures on Bright's Disease and Hypertension.—A series of lectures is being offered this month at New York Post-Graduate Medical School and Hospital on "Bright's Disease and Hypertension." Dr. Will C. Spain gave the first lecture, on "Allergy as a Cause of Migraine and Hypertensive Headache," and Dr. William Goldring the second, on "Modern Aspects of Renal Function in Relation to Bright's Disease." Coming lectures are:

Dr. Irvine H. Page, Surgical Treatment of Hypertension, April 15.
Dr. Albert A. Epstein, So-Called Lipoid Nephrosis or Diabetes Albuminuricus, April 22.

Dr. Arthur M. Fishberg, The Heart in Bright's Disease, April 29.

Personal.—Dr. Meredith Fairfax Campbell, clinical professor of urology, New York University College of Medicine, has been promoted to be professor of urology, succeeding Dr. Alfred Townsend Osgood, who has become professor emeritus.—Dr. James P. Croce, clinical professor of internal medicine at the New York Polyclinic Medical School and Hospital, has been made professor of internal medicine and Dr. Howard Sheffield Jeck, New York, has been appointed professor of urology.—Dr. Richard H. Bennett has been appointed medical director of the Brooklyn Home for Consumptives, succeeding the late Dr. Luther F. Warren. Dr. Bennett has been senior attending physician.—Homer Folks, LL.D., secretary of the State Charities Aid Association since 1893, was honored at a dinner at the Waldorf Astoria, February 18, celebrating his seventieth birthday.—Dr. Henry Joachim, Brooklyn, has been appointed by Governor Lehman a member of the state industrial council to succeed Dr. William Linder.

OHIO

Hospital News.—Dr. Louis N. Katz, director of cardiovascular research, Michael Reese Hospital, Chicago, lectured at the research institute of the Jewish Hospital, Cincinnati, recently on "Recent Observations of the Coronary Circulation."

Dr. Rous Lectures in Cincinnati.—Dr. Francis Peyton Rous of the Rockefeller Institute for Medical Research delivered a lecture at the University of Cincinnati College of Medicine, March 29, on "Present Knowledge of the Causation of Tumors."

Postgraduate Day at Youngstown.—The Mahoning County Medical Society will hold its tenth annual "Postgraduate Day" April 20 with speakers from the University of Michigan Medical School, Ann Arbor. Following is the tentative program:

Dr. Albert C. Furstenberg, A Clinical and Anatomical Study of Inflammatory Processes in the Mouth and Pharynx.

Dr. Frank N. Wilson, Coronary Occlusion; Cardiac Failure.

Dr. Frederick A. Collier, Administration of Fluids to the Sick Patient; Surgical Aspects of Gallbladder Disease.

Dr. Cameron Haight, Treatment of Empyema; Surgical Management of Pulmonary Tuberculosis.

Dr. John M. Sheldon, Skin Hypersensitiveness; A Consideration of the Diagnostic Criteria and Specific Management for Allergic Disease.

PENNSYLVANIA

Fourteen Physicians in the Legislature.—The *Pennsylvania Medical Journal* reports that fourteen physicians are members of the legislature. In the senate are Drs. Leroy E. Chapman, Warren; George A. Deitrick, Sunbury; Patrick J. Henney, McKees Rocks; I. Dana Kahle, Knox; Leo C. Mundy, Wilkes-Barre, and George Woodward, Philadelphia. In the house of representatives are Drs. Samuel P. Boyer, Johnstown; Emlyn T. Davies, Old Forge; Audley O. Hindman, Burgettstown; Albert F. Merrell, Hallstead; George J. Sarraf, Pittsburgh; William W. Serrill, Kellettsville; Thomas E. Shea, Philadelphia, and Albert J. Valibus, Edwardsville.

Philadelphia

Society News.—Dr. John O. Bower, among others, addressed the Philadelphia Academy of Surgery, April 5, on "Prevention of Induced Spreading Peritonitis Complicating Acute Perforative Appendicitis."—The program of the Eastern Pennsylvania chapter of the Society of American Bacteriologists, February 23, included the following speakers: Dr. Baldwin H. E. W. Lucke, on "The Relation of Viruses

to Neoplastic Diseases"; Dr. Joseph Stokes Jr., "Studies in Active Immunization Against Human Influenza"; Henry W. Scherp, Ph.D., Dr. Irving J. Wolman, Earl W. Florsdorf, Ph.D., and Mr. D. R. Shaw, "Studies on Concentration and Preservation of the Virus of Poliomyelitis and Influenza," and Dr. John A. Kolmer, Miss Clara Kast and Miss Anna M. Rule, "Attempts at the Cultivation of the Virus of Poliomyelitis" and "Attempts to Produce Poliomyelitis in Ferrets and Other Lower Animals."

TENNESSEE

Medical Activities Among Flood Refugees.—The *Memphis Medical Journal* for March contains a preliminary report of medical activities among refugees from the Ohio and Mississippi floods in late January and early February, that of the personnel committee of the Memphis and Shelby County Medical Society. A school was converted into an emergency hospital and offices were established there for the committees in charge. From this center medical and clerical staffs were organized for the emergency aid stations at the fair grounds and the municipal auditorium, a pediatric emergency hospital in the juvenile court building and various other units at points at which refugees were concentrated. Physicians were furnished to make sick calls twice a day in all barracks (fifteen or twenty in all) and outpatient clinics were set up in several of them. A mobile emergency unit was organized with eleven young physicians, known as the "flying squadron," to assist in emergencies wherever needed. The Drug Club of Memphis had charge of organizing and distributing drugs from a central store room at the school-hospital. Dentists set up equipment at the fair grounds aid station and had dentists holding clinics at regular hours. The available ambulances, including private ones as well as others furnished by the army and the Tennessee Valley Administration, were organized into a single unit, with a central starting stand equipped with telephones and operators. The report pays special tribute to the medical students of the University of Tennessee, who worked with the department of health and the Memphis and Shelby County Medical Society. A complete hospital unit was brought to Memphis by Dr. Eugene L. Bishop, medical officer of the TVA, from Knoxville and placed at the disposal of the society. The state commissioner of health also brought a contingent to aid the health department in its preventive work. The society's hospital committee reported that from the arrival of the refugees up to February 16 there had been 1,657 patients hospitalized. The largest number hospitalized any one day was 813 on February 4. Beds were available at twenty-one different places.

TEXAS

Society News.—Dr. Eugene V. Powell, Temple, was elected president of the Texas Radiological Society at its annual meeting in Abilene recently. Dr. Leon J. Menville, New Orleans, conducted a diagnostic clinic on bone tumors and made an address at an evening banquet.—Papers on control of syphilis were presented at a meeting of the Dallas County Medical Society, Dallas, April 8, by Drs. James W. Bass, Everett C. Fox and Arthur G. Schoch. In addition, Dr. Walter G. Reddick spoke on amebiasis and Dr. Sim Driver on bone tumors.

GENERAL

Place of Pediatric Meeting Changed.—The American Pediatric Society will hold its annual meeting at the Homestead, Hot Springs, Va., April 29-May 1. The meeting was previously scheduled to be held in University.

Impostor "Brown"—Warning.—A Buffalo physician reports that a man posing as a clinical pathologist under the name Brown has recently victimized a member of the staff of the Buffalo City Hospital by persuading him to endorse a check for \$50. The story resembles closely a report published in *THE JOURNAL*, February 13 (page 567). The man said that he had automobile trouble and needed ready cash. In Buffalo he was looking for a technician in bacteriology, saying that he was pathologist and laboratory director for a large hospital in Columbus, Ohio. As in Detroit, he presented as his only identification a bank book showing deposits. According to the report from Buffalo he had a large broad nose, thick lips and beautiful white teeth. His skin was thick and deeply furrowed. His forehead receded and the occiput tapered backward. The hair was black, short, curly, wavy and polished, with some gray in it. His skin was not clear white but rather a pale yellow. Similar reports have been received from Chicago and Davenport, Iowa.

Society News.—Dr. Charles S. Holt, Fort Smith, Ark., was elected president of the Missouri Pacific Medical Association,

January 29, at its annual meeting in Little Rock; Drs. Robert N. Canaday, Dupon, Ill., and William T. Rance, Omaha, vice presidents, and Joseph A. Lembeck, St. Louis, reelected secretary.—The American Physiotherapy Association, an organization of technicians, will meet in St. Paul at the Hotel Lowry, June 27-July 1.—The seventh National Conference on Visual Education and Film Exhibition will be held in Chicago, June 21-24, at the Francis W. Parker School, 330 Webster Avenue.—Dr. Thomas C. Davison, Atlanta, was chosen president-elect of the Southeastern Surgical Congress at its annual meeting in Charlotte, N. C., March 8-10, and Dr. Fred W. Rankin, Lexington, Ky., was installed as president. Dr. Julian L. Rawls, Norfolk, Va., was elected vice president and Dr. Benjamin T. Beasley, Atlanta, was reelected secretary. Next year's meeting will be in Louisville, Ky.—Dr. Frederick L. Reichert, San Francisco, was chosen president of the Pacific Coast Surgical Association at its annual convention in Victoria, B. C., February 27, and Dr. Harry Glenn Bell, San Francisco, reelected secretary.

Meetings at Atlantic City.—The thirteenth scientific session of the American Heart Association will be held in Atlantic City, N. J., June 7-8, at Haddon Hall.—The American Neisserian Medical Society will hold its annual meeting June 8 at the Senator, Atlantic City.—The Society for the Study of Asthma and Allied Conditions will hold its spring meeting at the Chalfonte-Haddon Hall, Atlantic City, May 1.—The annual luncheon of the Phi Lambda Kappa medical fraternity will be held Wednesday, June 9, at the Ritz-Carlton Hotel, Atlantic City; headquarters for the fraternity will be maintained at the same hotel during the annual session of the American Medical Association.—The American Committee on Maternal Welfare, Inc., will have a luncheon meeting at the Hotel Dennis, Atlantic City, Wednesday, June 9, at 12:15 p. m. Addresses will be made by Drs. Malcolm T. MacEachern, Chicago; Herman G. Weiskotten, Syracuse, N. Y., and Ray Lyman Wilbur, Stanford University, Calif. It is requested that tickets be purchased directly from the hotel and well in advance, so that the service will be expedited.—The annual meeting of the American Gastro-Enterological Society will be held in Atlantic City, June 7-8. Dr. Russell S. Boles, Philadelphia, is the secretary.

Mortality Rates in Eighty-Six Cities in 1936.—The U. S. Bureau of the Census reports that the death rate in eighty-six major cities of the United States for 1936 was 12.3 per thousand of estimated population, as compared with 11.4 for 1935. The actual number of deaths was 458,754, compared with 427,736 in 1935. Three unusual features of the 1936 figures are pointed out. Deaths during February, March and April were considerably greater than during the corresponding months of the previous year; a widespread heat wave during July 1936 caused the death rate to reach 17 in that month, and during the last week of 1936 there was a sharp increase in deaths, reflecting the general increase in deaths from influenza and pneumonia during the past winter. The cities with the highest rates were Nashville, Tenn., 19.2; Washington, D. C., 18.7; New Orleans, 18.6, and Memphis, 18. Among cities with a rate appreciably lower than the general rate were South Bend, Ind., 8.1; Yonkers, N. Y., 8.3; Flint, Mich., 8.2; Detroit, 8.4, and Akron, Ohio, 8.4. New York and Chicago had the same rate, 10.8. The provisional infant mortality rate was 51 per thousand live births. The final rate for 1935 was 54, but since the provisional rate generally tends to be somewhat lower than the final rate there is no reason to believe that there has been an important reduction in infant mortality, the bureau's report states.

Annual Report of Commonwealth Fund.—During 1936 the Commonwealth Fund of New York expended \$1,967,153, more than two thirds of which was for medical research and the improvement of medical service in rural areas. For the first time in several years a large share went to New York institutions, according to the *New York Times*. The largest appropriation was a gift of \$250,000 to Columbia University College of Physicians and Surgeons to aid in enlarging laboratory facilities for graduate medical education. Funds to provide full time psychiatric consultation for staff and students of pediatrics were awarded to Babies Hospital and New York Hospital and aid was continued to a study of medical education in New York hospitals sponsored by the New York Academy of Medicine. Other appropriations were made to New York Hospital for a study of rheumatic fever; Neurological Institute for study of the structure and development of the brain; to Bellevue Hospital for study of tuberculosis and to the New York City Department of Health for its pneumonia serum project. Johns Hopkins University School of Medicine, Baltimore, received funds to finance studies of high blood pressure uncomplicated by organic disease, of the chemical nature

of insulin and of placental extract in the treatment of measles and other virus infections. Scholarships were awarded to physicians in Tennessee, Mississippi and the northern New England states for periods of graduate study in Harvard, Tulane, Vanderbilt and other medical schools. Continuing its program of building small hospitals in cooperation with local authorities, the fund completed the seventh of these hospitals at Kingsport, Tenn., began the eighth at Tupelo, Miss., and awarded the ninth to Ada, Okla. Aid was also given to improvement of public health service in Tennessee, Mississippi and Massachusetts.

American College of Physicians.—The twenty-first annual session of the American College of Physicians will be held at the New Jefferson Hotel, St. Louis, April 19-23. A special feature of the program is a course of morning lectures, consisting of three symposiums on tuberculosis, infectious diseases and diabetes mellitus, and a mixed program. A departure this year is the series of round table discussions, which have been arranged so as not to conflict with the morning lectures and hospital clinics. Following are the leaders in the discussions and the topics:

- Dr. Elliott P. Joslin, clinical professor of medicine, Harvard University Medical School, Boston, Diabetes Mellitus.
- Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., Public Health Aspects of Syphilis.
- Dr. Samuel A. Levine, assistant professor of medicine, Harvard University Medical School, Boston, Cardiovascular Problems.
- Dr. James Alexander Miller, professor of clinical medicine, Columbia University College of Physicians and Surgeons, New York, Pulmonary Tuberculosis.
- Dr. Walter C. Alvarez, professor of medicine, University of Minnesota Graduate School of Medicine, Rochester.
- Dr. Henry E. McLency, associate professor of public health, Vanderbilt University School of Medicine, Nashville, Tennessee, Amebiasis and Malaria, Diagnosis and Treatment.
- Dr. Robert A. Cooke, assistant professor of clinical medicine, Cornell University Medical College, New York, Allergy.
- Dr. O. H. Perry Pepper, professor of medicine, University of Pennsylvania School of Medicine, Philadelphia, Diseases of the Blood.
- Dr. Udo J. Wile, professor of dermatology and syphilology, University of Michigan Medical School, Ann Arbor, Treatment of Various Phases of Syphilis.

The annual smoker will be held Monday evening. The John Phillips Memorial Medal for 1936-1937 will be presented during the convocation ceremony Wednesday evening to Dr. Richard E. Shope of the Rockefeller Institute for Medical Research, Princeton, N. J. Following this ceremony John Dewey, LL.D., professor emeritus of philosophy, Columbia University, New York, will deliver the convocational oration on "The Unity of Man." Thursday morning a pilgrimage to the grave of William Beaumont is planned. In the evening Dr. Alfred Stengel, Philadelphia, will be the toastmaster at the annual banquet. The speaker will be Dr. Logan Clendening, Kansas City, Mo., on "American Medical Shrines."

FOREIGN

Personal.—Dr. John Stirling Young, professor of pathology in the Queen's University, Belfast, has been appointed professor of pathology at the University of Aberdeen, Scotland, to succeed Prof. Theodore Shennan, who resigned.—Sir Joseph Barcroft, professor of physiology at the University of Cambridge, will retire at the end of September, the *Lancet* reports, and will be succeeded by Dr. Edgar Douglas Adrian, Foulerton professor of the Royal Society and fellow of Trinity College, Cambridge. Dr. Adrian shared the Nobel Prize in medicine and physiology with Sir Charles Sherrington in 1932.

Society News.—The International Congress of Military Medicine and Pharmacy will be held in Bucharest, June 2-10. The secretary-general is M. Popescu Buzeu, Institut Sanitary Militar, Bucarest, Ile, Rumania.—The sixth International Congress on Rheumatism, sponsored by the International League Against Rheumatism, will be held in Oxford, England, about the end of March 1938. Dr. J. F. L. Van Breemen, Keizersgracht 489/491, Amsterdam, is the secretary.—The fourth International Congress on the History of Science will be held in Prague, September 22-27.—The Medical Society of Vienna will celebrate its one hundredth anniversary with clinics and lectures from May 19 to May 29. Among those who will take part in the program will be:

- Dr. Paul Clairmont, Zurich, Actinomycosis.
- Dr. R. Leriche, Strasbourg, New Principles in Surgery.
- Dr. Friedrich von Müller, Munich, The Arthritic Diathesis.
- Dr. Otto Naegeli, Zurich, Significance of Diagnosis of Disease Groups, with Special Reference to Diseases Difficult to Recognize.
- Dr. Erich Lexer, Munich, Wound Infections.
- Dr. Walter Stoeckel, Berlin, Prophylactic Work of the Gynecologist.
- Dr. Ferdinand Sauerbruch, Berlin, Development of Medicine in the Nineteenth and Twentieth Centuries.

Among other speakers whose subjects were not announced were Drs. Karl F. Wenckebach, Anton von Eiselsberg and Julius Wagner-Jauregg, all of Vienna. Various special societies will hold meetings during the period of celebration.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 13, 1937.

Special Tax Proposed for Foods with Health Claims

The attempts of the British Medical Association to grapple with the nostrum evil have been described before (*THE JOURNAL*, Dec. 5, 1936, p. 1900). Immense sums are spent on these "patent medicines," for which more or less fraudulent claims are widely advertised. A bill, made so moderate as to secure the support of newspaper and advertising associations and representatives of the drug trade, which would therefore have checked only the worst evils, was lost in consequence of misleading propaganda (*THE JOURNAL*, May 23, 1936, p. 1829). A tax is levied on "patent medicines" from which a considerable revenue is derived. But in these days when the government is so active in promoting the health of the people it cannot continue to ignore the evil of fraudulent claims.

The reform of medicine stamp duties has been the subject of report of a select committee of the House of Commons. It proposed that preparations or substances of any sort which are recommended, held out or advertised in any way for the prevention, cure or relief of any human ailment shall be liable to duty. The revised scale of duty suggested is graded from 0.25 cent to 2 cents for articles costing up to 12 cents and 2 cents for every 12 cents over that price. If it is decided to adopt an ad valorem duty the committee recommends 16⅓ per cent. It is suggested that exemption should be granted to all medicines recommended and sold solely to physicians or dentists or supplied to pharmacists for use in dispensing physicians' prescriptions. The committee also advises considering the advisability of taxing foods and certain appliances, beverages and other preparations widely advertised as having properties beneficial to health. The report gives two estimates as to the turnover of those engaged in the manufacture of "patent medicines"—a conservative one of \$100,000,000 and a higher one of \$140,000,000, depending on an unknown element. On the basis of the former, the duty of 16⅓ per cent would yield \$16,500,000. Should control of the trade in medicines be deemed desirable for the protection of the public, the committee believes that the best method of achieving this would be a system of examination and registration of all advertised medicines and appliances. This last recommendation is too weak. It does not meet the worst evils, such as nostrums advertised for the cure of tuberculosis or diabetes, which should not be allowed. Moreover, registration would be thought by the ignorant to be some sort of a guaranty of respectability.

The Diagnosis and Treatment of Acute Poliomyelitis

The Ministry of Health has issued a revised pamphlet on acute poliomyelitis in which recent advances in the pathology, diagnosis and treatment are reviewed. It is pointed out that the initial symptoms are indistinguishable from those of other infections, but signs of lesions of the central nervous system may appear rapidly. The following signs are confirmatory of a provisional diagnosis in the preparalytic stage: *Spinal sign*: The patient is disinclined to bend the head forward on account of the pain produced, and there is resistance to passive anterior flexion of the neck. When he is raised by the shoulders the head falls backward and he cannot easily bring it forward again. A simple way of eliciting this sign is to ask him to kiss his knees. *Amoss's sign*: This is a useful modification of the spinal sign in older children. When placed in the sitting posture and asked to fold his arms the child may attempt to

do so but quickly reverts to the position in which part of the body weight is borne by the arms, which thus makes three legs of a tripod, the spine being the third.

When stiffness of the spine or resistance of the neck to passive flexion supervenes, associated with headache and fever, a provisional diagnosis is justified and the cerebrospinal fluid should be examined. As regards the poliencephalitic form, implication of the brain, medulla, meninges or spinal nerves may give rise to symptoms such as bulbar paralysis or speech disturbances. The differential diagnosis from lethargic encephalitis, cerebrospinal meningitis, tuberculous meningitis or septic meningitis is made by the previous history and the presence of other cases in the vicinity, with examination of the cerebrospinal fluid.

The results of serum treatment reported by different observers are contradictory. American workers have been skeptical, in view of the grave after-effects. The Ministry of Health is sufficiently impressed to give the following rules: 1. Convalescent serum should be given as early as possible; i. e., immediately after any sign of spinal involvement and lumbar puncture have confirmed the diagnosis. 2. The serum may be administered at the time of, or as soon as possible after, diagnostic lumbar puncture, provided the quantity injected does not exceed the amount of fluid withdrawn. A suitable intrathecal dose is about 20 cc., with 30-50 cc. given by other routes (intravenous or intramuscular). If no improvement is observed, the administration may be repeated within twenty-four hours. 3. The serum should be given only by an experienced physician or a clinical pathologist versed in the technique of intrathecal and intravenous administration.

Precautions against infection should be taken. It is difficult to say how long a patient remains infectious, but the ministry recommends isolation from other children for six weeks and limiting association with him to that necessary for care and nursing. Those in attendance should bear in mind that infection may be conveyed from the nasopharyngeal secretions, urine and excreta. A strictly surgical standard of nursing is therefore indicated, with use of nasal sprays or douches and gargling. Children in the affected household should remain away from school for three weeks after isolation of the patient. The balance of evidence is in favor of not closing residential schools on the appearance of poliomyelitis, which would only more widely distribute any potential infection.

Asthma Research

The report of the Asthma Research Council for 1936 has been published. The council cannot offer individual advice but is gratified to hear from all parts of the world that patients are deriving benefit from the exercises described in their pamphlet (reviewed in a previous letter). The treatment at the centers of the council in various hospitals is described. At St. Mary's Hospital, London, the treatment may be divided into (1) desensitization, (2) antibacterial and (3) psychologic. The psychologic factor has always been regarded as of great interest at this clinic. For many years it has been clear that a psychologic upset may precipitate an attack of asthma, urticaria or eczema and that, on the other hand, these diseases may produce a psychologic upset. Dr. Wittkower believes not only that asthmatic persons tend to be psychologically abnormal but that asthma and allied diseases tend to occur particularly in those whose lives have been psychologically blighted at an early age. Further he holds, in common with most psychiatrists, that asthma and eczema are often symbolic of some mental trouble and that therefore the physical disease may be a relief from neural tension, such as anxiety, and so may be an advantage in affording escape from something worse. While admitting that such cases occur, the Asthma Research Clinic as a whole does not accept this as a general principle.

Sensitization to mold spores is found to play a big part in locality asthma. Warned by previous difficulties in myologic research, the clinic has treated these cases by dust collected in the patient's house by a vacuum cleaner. It has not succeeded in making dust into a stock extract for testing purposes or a stock vaccine for treatment, since the ingredients of the dust depend almost entirely on local factors. A number of successes have been scored with "autogenous" dust extracts, but there have also been many failures and research is proceeding on this point.

The separate hay fever clinic commences at the beginning of March each year and ends in July. There has been a great extension of the principle of self inoculation, on the whole with satisfactory results. Those who are temperamentally or intellectually unsuited for self inoculation receive all their treatment at the clinic. In addition to this prophylactic desensitization, many apply for treatment during the actual season. These have received the customary small doses, often with marked benefit. This is taken to show that there are two immunologic principles, for the slight stimulus from a dose of 100 units cannot act in the same way as the draining away or neutralizing of sensitivity by repeated doses of 100,000 units. This duality is confirmed by the recent work of Coke and his collaborators in America. Their results indicate that specific pollen therapy may engender a curious type of antibody which inhibits the reaction of sensitized cells to the specific pollen extract, and they report favorably on the results of transfusion of whole blood or serum containing this antibody in untreated cases of hay fever.

PARIS

(From Our Regular Correspondent)

March 12, 1937.

Criticism of Social Insurance Law by One of the Insured

The medical profession in France is so accustomed to read criticisms from the physician's standpoint of the recently (1935) modified social insurance law that it appeared to be of interest to hear the other side; i. e., how the insured worker looks at the law. In the effort to do so an intelligent electrician was asked to look over the various paragraphs of a "guide for physicians" recently issued by the Central Federation of Medical Syndicates. The paragraphs and corresponding suggestions of the insured worker are as follows:

Paragraph 1. The insured worker reimburses the medical attendant directly for all services and the latter signs the "sickness blank" stating the sum paid.

Criticism: It frequently happens that the insured worker does not have sufficient funds to pay immediately for medical services; hence it would be better for the caisses or disbursing bureaus of the social insurance organization to pay the physician and to deduct the sum paid from the indemnity of the insured. If the insured cannot pay the physician, the latter is obliged by the law to refuse to sign the certificate. The result is that frequently the insured does not call a physician, because unable to pay for the services in advance, and hence many do not receive the needed medical attention.

Paragraph 2. If the physician treating the insured worker desires to call a consultant, a special blank must be given the insured worker by the attending physician and this must be presented to the local caisse, who gives the necessary permission. In emergency cases this formality is temporarily waived by the caisse.

Criticism: The caisses reimburse the insured only an insignificant sum for consultants. For example, in the city where the electrician lives the expense of a consultation is about 200 francs (about \$10) and the insured is reimbursed only to the extent of 27 francs. In addition, only two consultations are allowed in a given case.

Paragraph 3. If an illness lasts more than six months, all indemnity ceases except in the cases in which the insured is given an invalidity certificate. A relapse that takes place within the two months following "apparent cure" is considered a new illness. The insured can then be given a second six months indemnity period if he files a certificate to the effect that he had been "apparently cured" at the termination of the first six months period.

Criticism: There ought not to be any limit to the period during which an insured person should be indemnified. In a great many cases, to limit indemnity to a six or even twelve months period works a hardship on many of the younger insured workers, some of whom suffer as the result of hereditary disease. In general, one cannot set a date at which a chronic ailment can be considered as "apparently cured."

General criticism: The indemnities allowed by various caisses vary greatly; for example, the insured electrician paid 300 francs for his daughter's tonsillectomy and was reimbursed only 76 francs; one of his friends received an indemnity of 123 francs and another 127 francs in a similar case. The funds of the social insurance organization should not be used to help out a deficit in the government budget, because there will be no money left when the period arrives to pay for old age insurance. There has been much criticism of the unwise investment of social insurance funds in securities and real estate of doubtful cash value.

The Cerebral Form of Mumps

Among the nervous complications of mumps, such as meningitis, meningo-encephalitis or neuritis, one can distinguish certain forms that occur toward the end of the infection or prior to the glandular manifestation or even independently of any other localization due to the virus of mumps. At the Oct. 9, 1936, meeting of the Société médicale des hôpitaux some interesting cases in which the onset resembled a psychosis were reported by Urechia and Elekes of Rumania. The first patient was a girl, aged 19 years, who had scarlatina at the age of 5. The present illness began suddenly June 12, 1935, with severe headache, insomnia, irritability and depression. Three days later, mental confusion with incoherence, agitation and hallucinations appeared. This condition, resembling an acute psychosis, persisted for two days more, at which time a left parotid swelling was noted, followed by a similar condition of the opposite parotid and of both submaxillary salivary glands. The mental confusion increased and the general condition became worse, the patient dying eight days after the incipient mental symptoms. The diagnosis was the primary cerebral form of mumps.

A second patient was a woman, aged 48, whose previous history revealed only a serofibrinous pleurisy at the age of 29 and occurrence of the menopause one year before the present illness. The latter began suddenly in the form of marked agitation of a maniacal type. Four days after the onset a left parotitis appeared, accompanied by signs of marked cardiac weakness and followed by involvement of the opposite side a few days later. Death from myocarditis occurred on the eleventh day after the onset of the mental symptoms.

These two cases show that mumps may be a far more serious infection than is generally believed.

Protection Against Carbon Monoxide Gas in Shelters During War

At the Dec. 22, 1936, meeting of the Académie de médecine, Dr. André Kling read a paper on protection against carbon monoxide gas in shelters during war. The explosion of projectiles sets free a large quantity of carbon monoxide gas. An airplane bomb weighing 200 pounds, containing about 106 pounds of tolite, liberates, in bursting, 31 cubic meters of carbon monoxide, a quantity capable of rendering fatal the air of a

space 12 feet high, 24 feet wide and over half a mile long. If a bomb explodes in the earth there is great danger of this noxious gas entering water, sewer and other conduits as well as subterranean shelters. Hence it is indispensable to determine the composition of the air of all shelters, whether at the front or in cities subjected to bombardment, to ascertain whether the air has not been contaminated. Dr. Kling, who is director of the Paris Municipal Laboratory, presented a method, the carbon monoxide content being determined with hopcalite, which was sufficiently accurate and which could be used by persons not having any knowledge of chemistry.

Staphylococemia Treated Successfully with Staphylococcus Anatoxin

The efficacy of the staphylococcus anatoxin as prepared according to the technic elaborated by Professor Ramon of the Pasteur Institute has been frequently referred to in these letters. A remarkable case of recovery from a severe generalized staphylococcal infection following the use of the anatoxin was reported at the Oct. 16, 1936, meeting of the Société médicale des hôpitaux by Pagniez, Plichet and Rendu. A man, aged 31, was admitted complaining of pain referred to the chest, diarrhea and fever accompanied by profuse perspiration, of three weeks' duration. Physical examination revealed only numerous crepitant râles over both lungs. There was a marked purulent expectoration. The clinical picture was that of a severe septicemia, the temperature varying from 103 to 104 F. accompanied by profuse perspiration, pains over several joints and diarrhea. A blood culture positive for staphylococci was obtained for the first time eighteen days after admission, and a second one four days later. The staphylococcus anatoxin was begun at this period, eleven injections of 2 cc. being given at intervals of eight days. The blood culture was negative following the fourth injection. Following drainage of multiple superficial foci of suppuration, containing a nonhemolytic *Staphylococcus aureus*, the patient made an uneventful recovery.

Anomalies in Basal Metabolism in Children

A paper representing determination of the metabolism rate in more than 200 children with thyroid or hypophyseal syndromes was read at the Dec. 22, 1936, meeting of the Académie de médecine by Mouriquand and the Enselmes. The cases were divided into groups as follows:

A. Hyperthyroid states. A certain number presented a marked tachycardia in addition to other typical symptoms, but the metabolism was normal. Other children presented a more typical picture of sympathetic disturbance. Quite often the metabolism rate was also normal in such cases. Finally, cases with very marked hyperthyroidism symptoms were examined and found to have a high metabolism rate up to 70 plus, ending fatally in one case.

B. Hypothyroid states. 1. Classic myxedematous type. In general, there is an average lowering in the metabolism rate to -30. 2. Hypothyroid type of myxedema, i. e., without skin infiltration, representing an attenuated form of the preceding. The average lowering of the metabolism was -18. 3. Dwarfism type. Here the hypothyroid syndrome is often atypical (formes frustes) and the average lowering of the metabolism rate is -21. 4. Lymphatic type (clinical picture of lymphatism). The lowering of the metabolism rate varies from -12 to -18.

C. Hypophyseal states. In only one case in ten was a lowering of the metabolism rate noted. It was found normal in several typical cases of mongolism and chronic encephalopathy.

Plan to Erect Statue of Laënnec in Paris

No statue of Laënnec exists at present in Paris. A committee headed by Professor Sergent has just been appointed to collect funds for a statue to be erected on a site in front

of the new laboratory buildings which replace those of the Charité hospital. The amphitheater in which Laënnec taught in the latter institution still exists and the wards in which the discoverer of auscultation first applied this method faced the square in which the proposed statue will be placed. Those who wish to subscribe can send their contribution to Dr. Doury, 4 rue de la Muette, Paris (16).

Laying of Corner Stone of Hygiene Building for 1937 Exposition

The Paris Exposition, which will open its doors on the first of May, proposes to show the progress made in all human activities, especially hygiene. The corner stone of the hygiene building was recently laid by M. Henri Sellier, minister of public health, aided among others by Professor Tanon, head of the department of hygiene at the Medical School of the University of Paris.

Annual Election of Officers of Academy of Medicine

Prof. Henri Hartmann of Paris was president of the Académie de médecine during 1936. His successor for 1937 will be Professor Martel. As vice president for 1937 and president in 1938, Professor Bezançon was elected at the annual meeting of the academy, held Dec. 22, 1936.

BERLIN

(From Our Regular Correspondent)

March 8, 1937.

Decrease in Venereal Disease in German Navy

How to combat venereal diseases in the defense forces is always a difficult problem. Data on venereal infection among the men of the German fleet from 1920 to 1935 have been made public in the *Oeffentlicher Gesundheitsdienst* by Dr. Heinrich Ruge who, in addition to holding the high naval rank of squadron surgeon, is director of the hygienic section of the health bureau at the Baltic Naval Station, Kiel.

The number of venereal disease cases in the fleet has undergone a steady decline since 1924, a year that was marked by a definite subsidence of the evil effects of revolution and inflation. The incidence of all three venereal diseases diminished in equal measure. The results obtained in the fight against gonorrhea were gratifying despite the well known difficulties encountered in the suppression of this disease. The number of newly reported cases of gonorrhea amounted to 7.15 per cent in 1922; this proportion then underwent a steady decline and was only 1.67 per cent in 1934 and 1.51 per cent in 1935. The number of relapsed cases fluctuated between 1.1 per cent in 1922 and 0.2 per cent in 1934. Infections contracted in foreign ports constituted an insignificant proportion of all cases; of 3,087 gonorrheal infections reported from 1926 to 1930, 199 (6.4 per cent) were contracted abroad; in the period from 1931 to 1935 in a total of 2,023 gonorrheal infections, ninety-eight (4.8 per cent) were contracted abroad.

The incidence of syphilis cases presents a similar picture excepting that here the decline has been even more pronounced. In 1923 the percentage of newly reported cases of syphilis was 3.45, 3.9 if cases of double infection are included; in 1934 new cases of syphilis amounted to a mere 0.15 per cent and no cases of double infection were reported. The foregoing figures indicate, with regard to syphilis, that since 1924 we have been passing through the epidemiologic trough of the wave. On the other hand a slight increase in the incidence of syphilis has been observed in France, and similar increases have been noted here and there in both Germany and Italy. Moreover, the number of syphilitic infections acquired by German navy men abroad has steadily increased, such cases originating chiefly in tropical or subtropical regions. The proportion of cases of

syphilis contracted abroad was 14.4 per cent in the period from 1926 to 1930, 20.8 per cent from 1931 to 1935.

Chancroid is considered a filth disease, and under improved hygienic conditions it practically disappears. The proportion of patients presenting chancroid in 1923 was still 1 per cent, by 1924 it had already fallen to 0.3 per cent, and after 1931 it ceased to be of any numerical significance. The majority of chancroid cases (57 per cent or 163 in a total of 286 cases) were of foreign origin. In the majority of instances the infection was contracted in a brothel.

There were twenty-eight cases of climatic bubo (lymphogranuloma inguinale) reported in the fleet between 1924 and 1932.

The following were set forth as causal factors in this strikingly abrupt recession of venereal infection of all three types: decrease in venereal disease among the population as a whole, more adequate instruction and advice to the naval personnel on the subject of venereal diseases, better knowledge of the sources of infection, and improvement in prophylactic and therapeutic measures.

New cases of venereal infection reported abroad can almost without exception be traced to brothels. The introduction of routine instruction to the ships' people by the doctor was followed by an increase in the number of seronegative primary infections recorded and this is a definite indication that fewer of the men permitted precious time to elapse before reporting sick. The detection of the source of infection is extremely important. This was possible in about a third of the cases, and 75 per cent of the prostitutes involved were identified and subjected to medical examination. An average of from 60 to 70 per cent of the women examined were found to be infected and 90 per cent of those ill presented gonorrhea. Cases of double infection with syphilis and gonorrhea were seldom encountered. Reported cases in which other men were found to have transmitted venereal infections were extremely rare. Speedy and adequate prophylaxis was shown to be of decisive importance. Preventive measures are particularly necessary in parts of the world where a vast majority of the prostitutes are diseased, in seaports adjoining large cities of the tropics for example. During the years 1925-1936 approximately 27,000 prophylactic treatments were given the men of the German warships in foreign waters. These measures proved effective for all but 1.29 per cent of the men treated. It was found that the incidence of cases in which prophylaxis was ineffectual increased in proportion to the amount of time that had elapsed subsequent to sexual intercourse. The manifestation of disease could as a rule not be prevented if prophylaxis was not administered within five hours following contact. In the period from 1920 to 1923 conditions had been execrable; there was no routine administration of prophylaxis and the number of venereal infections had undergone a sharp increase. Regular prophylaxis was reinstituted in 1923 and this incontestably was responsible, in part at least, for the marked subsidence of venereal infection that has taken place since 1924. The administration of prophylactic treatment is made as nearly compulsory as possible. Prophylaxis on board ship in foreign waters is carried on with suppositories of strong protein silver and of similar silver preparations. This procedure is apparently more effective than the instillation of solutions. In addition, following the usual washing and after flushing with a mercury bichloride solution, a 0.5 per cent mercury bichloride ointment is applied; more general use of condoms by the sailors has been an especially important prophylactic factor.

Diagnosis and Treatment in Bronchial Carcinoma

Professor von Eicken, ordinarius of laryngology at Berlin, recently discussed the diagnosis and treatment of bronchial carcinoma in the Berlin Medical Society. The apparent increase in bronchial carcinoma seems to be ascribable to the fact that

diagnosis is now being established with greater frequency than in former times. Before the introduction of roentgen examinations, this particular diagnosis was scarcely ever made. Recently bronchoscopy has become an important diagnostic aid; by employing this procedure, von Eicken has been able to establish incontestable diagnoses in sixteen of twenty cases. Bronchoscopy is at the same time of great therapeutic importance in these cases, as its use makes possible mechanical removal with the scoop-forceps of carcinomatous masses which narrow the bronchus and also the placing of radium in the immediate vicinity of the carcinoma where the radioactivity will be most effective. The position of small radium containers in the bronchial tree and the studding of the cancer with radon needles are controlled through x-ray visualizations. The pulmonary region is often surprisingly well cleared up by means of this procedure. Von Eicken explains this by the disappearance of a stasis of secretion that has formed as a result of the bronchial stenosis. With the cessation of coughing the patient obtains considerable relief. Although life may be prolonged by the use of this procedure, one cannot of course expect cures to result.

In the discussion of von Eicken's report it was emphasized by the internists present that this procedure should be considered an important advance, as by its application the danger of gangrene and the formation of abscesses distal to the bronchial carcinoma may be successfully averted. Atelectasis too appears to abate in the cases so treated. Roentgen therapy is considered to hold no prospect of success in bronchial carcinoma. Early diagnosis is important. Bronchoscopic procedures of today, if properly carried on, spare the patients the torture which they formerly were forced to endure.

Advertising in the Medical Press

Although the new régime in Germany has done away with the German Medical Professional Press Association, an organization with a long standing record of efficiency, one small department, the so-called Advertisement Investigation Committee, has been permitted to carry on.

The function of this board has always been the formulation of the standards that govern the acceptance or rejection of advertising copy by the medical journals. It had accordingly been influential in excluding much undesirable material from the advertising sections of these publications. The criteria applied to proposed advertisements have lately been modified on the basis of the new governmental regulation of the entire pharmaceutical industry (*THE JOURNAL*, Aug. 22, 1936, p. 599). Advertisements of pharmaceutical novelties the composition of which is not set forth in the usual works of reference must contain a description of the effective substance that will be readily comprehended by the medical reader. In the advertisements of medicaments that cannot legally be dispensed without a prescription, as well as iodine and iodine salts, the precise content of the effective substances in question must be given. It is forbidden to solicit testimonials and recommendations of the public. Illustrated advertisements must be in keeping with the importance and serious character of the pharmaceutical industry. The commission also passes on whether or not a picture presents too great an affront to the esthetic sense. The commission is also soon to make public the names of those firms whose advertising in the medical journals is not to be recommended. It also possesses the right to forewarn the profession against the advertising of certain substances, articles, procedures and treatments.

Some years ago the Advertisement Investigation Committee drew up a list of certain types of disapproved advertisements. This list has recently been revived. These efforts to carry forward a work that has been going on for decades are in themselves most welcome.

VIENNA

(From Our Regular Correspondent)

Feb. 27, 1937.

Vital Statistics of Austrian Jews

The Central Headquarters of Jewish Congregations of Austria, located in Vienna, has just published an interesting statistical report. In 1923 there were 220,208 Jews resident within the republic of Austria (201,513 within Vienna alone). In 1934 the Jewish population was reported to number 191,481 persons, of whom 176,034 were in Vienna. The total decline here represented amounted to 13 per cent. This retrogression in the Jewish population is in direct contrast to the trend among the non-Jewish elements. First among the contributing causes is the marked falling off in the Jewish birth rate. In 1923 there were still 2,736 Jewish infants born; in 1928 the figure was 1,362, by 1933 it had fallen to 900 and in 1936 it amounted to a mere 757. The number of deaths among Austrian Jews was 2,571 in 1923, 2,669 in 1928, 2,689 in 1933 and 2,757 in 1936. A slight increase (by 162 persons) over the previous years in the Jewish population was still noted in 1923. But a progressively larger natural decline is to be observed from 1924 on. Numerically the decline progressed as follows: there were 132 fewer Jews in 1924 than in 1923, 1,307 fewer in 1928, 1,789 fewer in 1933 and 1,994 fewer in 1936. It is interesting to observe also that the number of persons leaving the Jewish community has steadily declined (from 1,276 to 534). The following causes of fatalities occurring in 1936 were reported: heart disease caused 24 per cent of all deaths, cancer 16 per cent, disease of the respiratory tract 12 per cent, diseases of the blood and vascular system (exclusive of heart disease) 17 per cent, diseases of the uropoietic system 6 per cent, marasmus 5 per cent, tuberculosis 4.5 per cent. Of Jews who died in 1936, 1,451 were of the male sex, 1,264 of the female sex. There were thirty-six stillbirths among the 757 births. Of the infants born alive, 366 were male, 355 female. There were fifty-four children born out of wedlock. The relatively large number of Jews who survive to the age of 90 is astonishing. In 1928 there were 217 Jews in Austria 90 years of age or over, and twenty-two of these persons had attained the age of 100. In 1929 there were 255 Jews aged 90 or more (of whom thirty-two were centenarians). Two years later the number of persons over the age of 90 was 266, including twenty-three persons aged 100 and three persons who were even older. Among the extremely aged the women constantly outnumbered the men by about 50 per cent. The number of these longeval persons remained virtually constant during the years following 1931. As an interesting supplement to the foregoing report on a particular element of the Austrian population, one may consider a recently published report of the Vienna Municipal Health Bureau which deals with the general condition of the Viennese population. According to this report there were 208 deaths to each hundred births in Vienna in 1936 and 215 deaths per hundred births in 1935 but only eighty-one deaths per hundred births in 1913. Altogether there were 11,945 infants born in Vienna (in 1936), but 24,869 persons died during the same year. There were 37,632 births and 30,613 deaths in 1913. The divisions according to cause of death among the Viennese population as a whole differ percentally but little from the corresponding proportions among the Jewish inhabitants (Jews constitute 10 per cent of the entire population in Vienna but they form only 3 per cent of the entire Austrian population). Exceptions are deaths from tuberculosis, which are almost twice as frequent among the non-Jewish as compared with the Jewish population; deaths from cancer are, however, 10 per cent more frequent among the Jews. The number of nonagenarians and centenarians is also relatively much smaller among the non-Jews; in other words, longevity is more conspicuous among Jews than among the population as a whole.

Presacral Procaine Hydrochloride Injections in Sciatica

Dr. Fenz reported in one of the more recent sessions of the Physicians' Society the treatment of forty cases of sciatica with presacral injections of 0.25 per cent solutions of procaine hydrochloride. This method was described two years ago by Dr. Pendl of Troppau but until now, in spite of the noteworthy results reported by Pendl, has received no verification from any other source. The procedure is simple. The patient lies supine, the legs are spread apart and the knees are propped up in a stationary position. A thin needle from 15 to 20 cm. in length is then introduced into the affected side from 1.5 to 2 cm. from the tip of the coccyx. It is next advanced, parallel to the os sacrum, within the presacral cavity till it reaches a point above the first and second sacral foramina. In this way the needle enters directly into the vicinity of the sacral roots of the nervus ischiadicus. The region is then injected with 150 cc. of a 0.25 per cent solution of procaine hydrochloride and the injection is continued while the needle is being withdrawn. The procedure is nearly always painless; in the more severe cases it is carried on under narcosis with the sodium salt of *n*-methyl-cyclo-hexenyl-methyl barbituric acid. If skilfully performed, the procedure is quite innocuous. It was employed seventy-six times by Dr. Fenz without the occurrence of the slightest accident. The intervention is not infrequently performed under circumstances of presacral anesthesia due to loss of nerve conduction. It is essential to the favorable performance of this presacral injection that a sufficient amount of the solution be deposited at the point of exit of the sacral ischiadic roots. Pendl even believes that the favorable results are to be attributed more to the large amount of fluid injected than to the anesthetic itself. The effect of the injection in Fenz's forty cases was truly remarkable; in only fourteen cases was a second injection necessary. Of the cases, 85 per cent were completely cured; the exceptions were old cases for which all other possible therapeutic procedures had been attempted unsuccessfully. Of the latter only two remained completely unresponsive; five patients were sent home manifestly improved. Follow up of the cured patients over the course of from one and a half to two years disclosed only two who were not entirely symptom free.

Centenary of Prof. Leopold Schrötter von Kristelli

The University of Vienna recently celebrated the one hundredth birthday anniversary of the Viennese physician Professor von Schrötter by the solemn unveiling of a memorial in the great courtyard on the university campus. Von Schrötter was the son of the chemist Anton von Schrötter, the discoverer of red phosphorus. Among his teachers were Hyrtl, Rokitsansky and Skoda. Von Schrötter became assistant to the last named and received from him an excellent foundation in internal medicine. At the same time von Schrötter became intensely interested in the new specialty of laryngology which Türck had founded. Von Schrötter devised many new methods of diagnosis and examination and was appointed docent in laryngology in 1867. He soon was able to secure the establishment of his own laryngologic clinic, the first of its kind in the entire world. Schrötter served as chief of this clinic (from 1870) and thereafter laryngology and rhinology also came to assume their present-day significance. Thanks to Schrötter and his successors (Schnitzler, Störk, Chiari, Hajek) Vienna became the center of laryngologic research. The rich harvest of experimental knowledge garnered in this clinic was put into book form by Schrötter himself in his two greatest publications, "Lectures on Diseases of the Larynx" and "Lectures on Diseases of the Trachea." Schrötter also originated the bouginage method for the treatment of laryngeal stenosis and the beginnings of tracheoscopy. It may be recalled that it was Schrötter

who (in 1888) correctly diagnosed the malignant affliction of the German crown prince (and later emperor) Friedrich of Germany. In addition to his activity as chief of the laryngologic clinic, Schrötter served both as director of the clinic of internal medicine (from 1872) and as head of the internal section of Rudolf Hospital. In 1890 a large special clinic of internal medicine was placed at his disposal at the General Hospital. There he conducted a series of instructive lectures, which were to become classic. These had to do in particular with diseases of the heart, vascular system and respiratory tract. Schrötter rendered a signal and fundamental service to the modern technic of hydraulic engineering by his investigations of caisson disease, a malady that made its appearance with modern industrial activities carried on under high atmospheric pressure. The most important and far reaching of Schrötter's activities were his efforts on behalf of the campaign against tuberculosis. This disease was then known and feared as the *morbus viennensis*. Schrötter was stirred by the vast extent of tuberculous infection, the havoc it wrought in the population's health and the inefficacy of contemporary therapeutics. He realized that only fresh air and sunshine, favorable climate and a hygienic dietary regimen could be of therapeutic benefit. He vigorously campaigned for the establishment of health stations in which tuberculous persons of the underprivileged classes might receive adequate care and he possessed a fanatical belief that tuberculosis might be cured at any stage, provided timely treatment could be introduced. Schrötter was actually able to effect the establishment of these tuberculosis sanatoriums. He was also the initiator and organizer of public education for the prevention of tuberculosis. By the dissemination of pamphlets for "the man in the street," by the placing of placards in workshops and factories, and by lectures which reached all classes of the population, he succeeded in convincing the general public of the value of improved hygiene in the prophylaxis of tuberculosis. Schrötter was responsible too for the international agreement with regard to all phases of the campaign, duly concluded at the International Antituberculosis Congress (Paris 1898); thus he was the originator of a veritable "league of nations" arrayed against the disease. The circumstances of Schrötter's death were tragic. At the International Congress of Rhinology, held at Vienna in 1908, he delivered the commemorative addresses in honor of Türk and Czermak, the fathers of laryngology. He was then 71 years old. That evening Schrötter entertained a throng of visitors to the congress in his home and during the night his active life was suddenly cut short by an apoplectic stroke.

Marriages

CHARLES DENBEIGH MARCHANT, Harmony Village, Va., to Miss Marian Steptoe Fitzhugh of Urbanna, January 28.

HERBERT H. HARRIS, Rockwell City, Iowa, to Sylvia J. Hoffman of Portland, Ore., Oct. 4, 1936.

THOMAS EARLE MARTIN, Guntersville, Ala., to Miss Celia Dean at Alexander City, in February.

CLARA CHRISTIE to Mr. Orrin Henry Eyres Might, both of Calgary, Alta., Canada, January 14.

ISHAM SELLERS MOORE JR., Runge, Texas, to Miss Dorothy Cronin of Houston, Dec. 31, 1936.

FREDERICK TOWSLEY MURPHY to Mrs. Frederick M. Alger, both of Detroit, in January.

EDWARD LEE HOPEWELL, Strasburg, Va., to Miss Effie Elizabeth Lively, February 14.

DWIGHT L. HOOD to Mrs. Beulah Harlie, both of Reno, Nev., Dec. 18, 1936.

THOMAS H. MILTON, Kenvir, Ky., to Miss Alice Kammeyer, in February.

FREDERICK E. ROSE to Miss Felicia Green, both of St. Louis, in January.

Deaths

Randolph Winslow ☉ Baltimore; University of Maryland School of Medicine, Baltimore, 1873; an Affiliate Fellow of the American Medical Association; member of the House of Delegates of the American Medical Association, 1905-1906, 1911, 1913, 1916-1923, 1927-1934, and member of the Judicial Council, 1915-1922; past president of the Medical and Chirurgical Faculty of Maryland and of the Baltimore City Medical Society; member and past president of the Southern Surgical Association; fellow and one of the founders of the American College of Surgeons; professor emeritus of surgery at his alma mater, professor of surgery, 1902-1920, professor of anatomy and clinical surgery, 1891-1902, lecturer of clinical surgery, 1886-1891, demonstrator of anatomy, 1880-1886, assistant demonstrator of anatomy, 1874-1880, and for many years a regent; formerly professor of surgery at the Woman's Medical College, Baltimore; first lieutenant in the medical reserve corps of the U. S. Army, 1909-1917; surgeon to the University Hospital; was awarded honorary degrees by St. John's College, Annapolis, in 1909, and the University of Maryland in 1924; aged 84; died, February 27.

Henry Benjamin Carey ☉ San Francisco; Northwestern University Medical School, Chicago, 1905; began teaching at the School of Pharmacy, Northwestern University, in 1900; in 1906 was appointed professor of botany and pharmacognosy at the California College of Pharmacy and continued in that position for thirty years; for many years acted as instructor and assistant professor in anatomy and histology in the Dental College, University of California; in 1932 he became acting dean of the California College of Pharmacy, which in 1934 became the College of Pharmacy of the University of California; aged 60; died, February 4, in the University of California Hospital, of carcinoma of the stomach.

William Cotterrell Bane ☉ Denver; Jefferson Medical College of Philadelphia, 1879; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; professor of otolaryngology emeritus, University of Colorado School of Medicine; member of the staff, St. Joseph's, Mercy, Presbyterian and St. Luke's hospitals; consultant, Children's Hospital; otolaryngologist to Denver Orphans' Home; consultant oculist for the Rock Island Railroad and the Denver and Rio Grande Western Railroad; aged 81; died, January 20, of coronary thrombosis.

Joseph Manning Steiner ☉ Greenville, Ala.; Tulane University of Louisiana Medical Department, New Orleans, 1904; member of the American Roentgen Ray Society and the Medical Society of the State of New York; served during the World War; director of the department of roentgenology, 1924-1932, Roosevelt Hospital; formerly on the staffs of the Doctors Hospital and the New York Infirmary for Women and Children; aged 56; died, January 27, of an injury received in a fall.

Howard Frederick Rand, Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; for many years assistant surgeon to the Battle Creek (Mich.) Sanitarium; superintendent and surgeon to the Boulder, Colo., Sanitarium and St. Helena Sanitarium and Hospital, Sanitarium, Calif.; surgeon to the Glendale (Calif.) Sanitarium and Hospital; aged 77; was killed when struck by an automobile, January 22.

Samuel Wakelin Worrell, Patton, Pa.; University of Buffalo School of Medicine, 1892; member of the Medical Society of the State of Pennsylvania; for nearly twenty-five years local registrar of vital statistics, state health department; health officer of Patton Borough and East Carroll Township for many years; aged 76; died, January 22, in the Windber (Pa.) Hospital, of carcinoma of the esophagus.

Laurence Donald McEvoy, New York; Missouri Medical College, St. Louis, 1896; member of the Medical Society of the State of New York; veteran of the Spanish-American and World wars; aged 70; died, January 29, in the Mount Sinai Hospital, of suppurative bronchopneumonia and coronary thrombosis.

Thomas William Moffitt, Los Angeles; Starling Medical College, Columbus, 1893; member of the California Medical Association; fellow of the American College of Surgeons; on the staff of the Hollywood Hospital; consulting surgeon to the Soldiers' National Home, Sawtelle; aged 66; died, January 4.

Wilbur Fisk Martin ☉ Colorado Springs, Colo.; College of Physicians and Surgeons, Medical Department of Columbia

College, New York, 1887; on the staff of the Beth-El Hospital and on the visiting staff of the Glockner Sanatorium and Hospital; aged 73; died, January 16, of influenza and pneumonia.

Morris Meyerovitz, Chicago; College of Physicians and Surgeons of Chicago, 1890; formerly member of the Illinois State Board of Health and the Chicago Plan Commission; at one time on the staff of the Cook County Hospital; aged 76; died, March 3, of coronary thrombosis and arteriosclerosis.

Clyde Talbot Bundy * Earl Park, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; served during the World War; aged 52; died, February 18, in St. Elizabeth Hospital, Lafayette, of ischiorectal abscess and pulmonary tuberculosis.

Bethune Freeman McDonald, Palestine, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1916; member of the State Medical Association of Texas; attending physician to the Missouri Pacific Lines Hospital; aged 44; died, January 23, of coronary occlusion.

Charles Sidney Walker * Keene, N. H.; Dartmouth Medical School, Hanover, 1901; past president of the New Hampshire Medical Society; served during the World War; city physician; on the staff of the Elliott Community Hospital; aged 66; died, January 19, of pneumonia.

Earl Vincent Morrow, Portland, Ore.; University of Oregon Medical School, Portland, 1910; was decorated by Belgium, France and America for services during the World War; aged 52; died, January 28, in the Virginia Mason Hospital, Seattle, of coronary thrombosis.

Charles Kincaid Summers, Nashville, Tenn.; Memphis Hospital Medical College, 1899; served during the World War; formerly assistant superintendent of the Central State Hospital; aged 58; died, January 25, in the Veterans Administration Facility, Memphis, of pneumonia.

Henry George Mauzey, Walla Walla, Wash.; Bellevue Hospital Medical College, New York, 1870; member of the Washington State Medical Association; was commissioned in the army in 1870; aged 88; died, January 31, in St. Mary's Hospital, of bronchopneumonia.

Albert A. Lowenthal, Chicago; College of Physicians and Surgeons of Chicago, 1895; at one time adjunct professor on mental diseases at his alma mater; formerly on the staff of the Cook County Hospital; aged 63; died, March 19, of coronary occlusion and diabetes mellitus.

Samuel W. Maphis, Warrenton, Va.; University of Maryland School of Medicine, Baltimore, 1893; member of the school board; for many years member of the state board of medical examiners; aged 69; died, January 26, of heart disease in Panama, Canal Zone.

Alexander Fitzhugh Magruder * Surgeon Lieutenant Commander, U. S. Navy, retired, Washington, D. C.; Columbian College Medical Department, Washington, 1871; entered the navy in 1871 and retired in 1896; aged 87; died, January 27, of pneumonia.

Charles Oliver Woodbridge, Saline, Mich.; Detroit College of Medicine, 1904; member of the Michigan State Medical Society; member of the city council; aged 56; died, January 24, in the University Hospital, Ann Arbor, of carcinoma of the stomach.

J. Russell Van Sickle, Santa Monica, Calif.; Detroit College of Medicine, 1906; member of the California Medical Association; on the staff of the Wilshire Hospital; aged 56; died, January 16, of coronary occlusion and diabetes mellitus.

William Pitt Mason, Little Boars Head, N. H.; Albany (N. Y.) Medical College, 1881; member of the Medical Society of the State of New York; aged 83; died, January 25, in North Hampton, of cerebral hemorrhage and cerebral sclerosis.

Silas Alfred McCullough, Pomeroy, Ohio; Starling Medical College, Columbus, 1904; member of the Ohio State Medical Association; county probate judge; formerly county health officer; aged 59; died, January 21, of pneumonia.

Edward Townsend McKenzie, New York; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Society of the State of New York; aged 64; died, January 28, in the Presbyterian Hospital.

Charles Fleetwood House, Walters, Okla.; Tulane University of Louisiana Medical Department, New Orleans, 1901; member of the Oklahoma State Medical Association; aged 64; died, January 8, in a hospital at Wichita Falls, Texas.

Walter Dora Lenker * San Bernardino, Calif.; College of Medical Evangelists, Los Angeles, 1918; at one time city and county health officer; formerly superintendent of the San Bernardino General Hospital; aged 43; died, January 30.

Alexander Beaton Chalmers, Fort Erie North, Ont., Canada; L.F.P.S. Glasgow, Scotland, 1880; M.B., C.M., University of Glasgow Medical Faculty, Scotland, 1881; aged 78; died, January 8, in the Douglas Memorial Hospital.

Archibald Joseph Kilgour, Kingston, Ont., Canada; University of Toronto Faculty of Medicine, 1922; member of the American Psychiatric Association; medical superintendent of the Ontario Hospital; aged 44; died, January 28.

H. Nelson Heffin * Kewanee, Ill.; Minneapolis College of Physicians and Surgeons, 1895; formerly health officer of Kewanee; on the staffs of the Kewanee Public Hospital and St. Francis Hospital; aged 72; died, January 15.

Horace Lindsley, St. Augustine, Fla.; Hahnemann Medical College of Philadelphia, 1887; formerly bank president and member of the county board of education; aged 81; died, January 21, of carcinoma of the descending colon.

Matthew Vassar Pierce * Milton, Mass.; Harvard University Medical School, Boston, 1880; formerly on the staff of the Milton Hospital and Convalescent Home; aged 81; died suddenly, January 24, of coronary thrombosis.

William F. Reilly, Cincinnati; Southern Homeopathic Medical College, Baltimore, 1895; formerly professor of rhinology and laryngology, Pulte Medical College; aged 80; died, January 5, in the Good Samaritan Hospital.

Philip Graham Reedy, Lisbon, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; served during the World War; aged 54; died, Dec. 19, 1936, in Fargo.

John Parks Gilmer, Los Angeles; Kentucky School of Medicine, Louisville, 1899; formerly police surgeon; served during the World War; aged 60; died, January 25, of peritonitis following a ruptured appendix.

Harry Stanley Lake * Brightwood, Bethel Township, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1899; veteran of the Spanish-American and World wars; aged 64; died, January 3, of lobar pneumonia.

Edgar Lawrence Ingersoll * Ephrata, Wash.; University and Bellevue Hospital Medical College, New York, 1899; served during the World War; county health officer; aged 64; died, January 28, in Spokane.

George Ellisworth Sutton, San Francisco; University of Minnesota Medical School, Minneapolis, 1914; served during the World War; fellow of the American College of Surgeons; aged 50; died, January 31.

Robert Wilson Barton, Temple, Texas; Louisville (Ky.) Medical College, 1880; one of the founders and for many years on the staff of the King's Daughters' Clinic and Hospital; aged 80; died, Dec. 27, 1936.

William Alexander Chisholm Macdonald, Windsor, Ont., Canada; University of Toronto Faculty of Medicine, 1899; served with the Canadian Army during the World War; aged 61; died, January 24.

Charles S. McDevitt, Des Moines, Iowa; University of Louisville (Ky.) Medical Department, 1909; aged 56; died, January 24, in the Mercy Hospital, of lobar pneumonia and intestinal obstruction.

Le Roy H. Daggett, Chicago; Jenner Medical College, Chicago, 1900; member of the Illinois State Medical Society; aged 64; died, February 3, in the Highland Park (Ill.) Hospital, of pneumonia.

George Alexander McQuibban, Alma, Ont., Canada; University of Toronto Faculty of Medicine, 1911; member of the Ontario Legislature for Wellington North since 1926; aged 52; died, January 30.

James Edward Copeland, Round Hill, Va.; Washington University School of Medicine, Baltimore, 1876; member of the Medical Society of Virginia; Confederate veteran; aged 91; died, January 17.

Leonard C. Ward, Damascus, Ga.; Atlanta College of Physicians and Surgeons, 1899; member of the Medical Association of Georgia; aged 60; died, January 31, in Bainbridge, of heart disease.

Edward Larned McGehee Jr., Hammond, La.; Tulane University of Louisiana Medical Department, New Orleans, 1902; aged 57; died, January 30, of hypertensive heart disease and nephritis.

John Franklin Harvey, Boston; University of the City of New York Medical Department, 1890; aged 79; died, January 16, in the City Hospital, of uremia and hypertrophy of the prostate.

Levi M. McFadden, Washington C. H., Ohio; University of Louisville (Ky.) Medical Department, 1892; for many years a member of the state legislature; aged 68; died, January 11, in Orrville.

Silas Wilkin Weir @ West Union, Ill.; St. Louis College of Physicians and Surgeons, 1906; aged 57; died, January 30, in the Union Hospital, Terre Haute, Ind., of acute dilatation of the heart.

Frank Dumont Sweet, Long Beach, Calif.; Atlanta Medical College, 1916; member of the California Medical Association; aged 49; died, January 24, as the result of an automobile accident.

Abraham Lincoln Shope, Penbrook, Pa.; Jefferson Medical College of Philadelphia, 1890; for many years a member of the Penbrook borough council; aged 68; was found dead, January 10.

Joseph Henry Carroll, Columbus, Ohio; Western Reserve University Medical Department, Cleveland, 1894; served during the Spanish-American War; aged 66; died, January 5, in Dayton.

Robert Mark Lees, Kenosha, Wis.; Marquette University School of Medicine, Milwaukee, 1933; aged 28; died, January 27, at a Civilian Conservation Corps camp near Grand Canyon, Ariz.

Walter George Finley, San Fernando, Calif.; John A. Creighton Medical College, Omaha, 1903; pathologist to the Veterans Administration Facility; aged 57; died, January 29.

James Albert Darby, Vancouver, Wash.; University of Oregon Medical School, Portland, 1909; member of the Washington State Medical Association; aged 62; died, January 18.

George Campbell Speirs, Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; also a dentist; aged 66; died, January 30, in Atlantic City, N. J., of coronary insufficiency.

Francis Percival Fitzpatrick, Campbell, Ohio; Georgetown University School of Medicine, Washington, D. C., 1913; served during the World War; aged 49; died, January 23.

Fred C. Wiley, Pigeon, Mich.; Detroit College of Medicine, 1896; on the staff of the Hubbard Memorial Hospital, Bad Axe; aged 64; died, January 21, of cerebral hemorrhage.

Albert Frank Zimmermann, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1905; aged 65; died, January 21, of a self inflicted bullet wound.

Joseph Grant Bartow, Lansing, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; aged 73; died, February 20, of coronary sclerosis.

John Bommer, Midnight, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1886; aged 94; died, January 30, in the King's Daughters' Hospital, Yazoo.

Arell La Fayette Marsteller @ Wilcox, Neb.; Barnes Medical College, St. Louis, 1906; past president of the Kearney County Medical Society; aged 54; died, January 24.

John F. McCool @ Indianapolis; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; aged 52; died, January 21, in St. Vincent's Hospital.

Benjamin Duncan Morrison, Wheeling, W. Va.; Hahnemann Medical College of Philadelphia, 1888; aged 72; died, January 25, in Beech Bottom, of diabetes mellitus.

John Paul Hoeffer @ St. Louis; Washington University School of Medicine, St. Louis, 1892; aged 69; died, January 24, in Webster Groves, Mo., of coronary occlusion.

Stanley H. Steiner @ New York; Columbia University College of Physicians and Surgeons, New York, 1909; aged 52; died, January 24, of cerebral hemorrhage.

Duncan M. Wood, Needham, Mass.; McGill University Faculty of Medicine, Montreal, Que., 1895; aged 69; died, January 27, in the Glover Memorial Hospital.

Samuel George Boyd, San Francisco; Harvard University Medical School, Boston, 1885; member of the Massachusetts Medical Society; aged 75; died, January 23.

Clayton A. Tribbet @ Westboro, Ohio; Miami Medical College, Cincinnati, 1886; past president of the Clinton County Medical Society; aged 82; died, January 5.

David Coyle McCulloch, Los Angeles; Medico-Chirurgical College of Philadelphia, 1896; served during the World War; aged 72; died, January 17, of tuberculosis.

Gustavus M. Wallace, Falmouth, Va.; University of Maryland School of Medicine, Baltimore, 1871; state senator; aged 88; died suddenly, January 28, of senility.

Robert L. Cherry, Bardstown, Ky.; Louisville National Medical College, Medical Department State University, 1902; also a minister; aged 76; died, January 2.

George Hoitt Sanborn @ Henniker, N. H.; Medical School of Maine, Portland, 1874; aged 82; died, January 23, of pulmonary infarct and coronary thrombosis.

Thomas Hughes @ Chicago; Northwestern University Medical School, Chicago, 1892; aged 70; died, February 5, of bronchopneumonia and diabetes mellitus.

Williams Davis Wall Jr., Zachary, La.; Tulane University of Louisiana Medical Department, New Orleans, 1893; aged 66; died, January 6, of angina pectoris.

William B. Shields, St. Louis; Memphis (Tenn.) Hospital Medical College, 1889; aged 73; died, January 22, in the Missouri Baptist Hospital, of pneumonia.

William T. Morrison, Pigeon, Mich.; Michigan College of Medicine and Surgery, Detroit, 1896; aged 71; died, January 31, of carcinoma of the stomach.

John Henry Sylvester O'Brien, Pittsfield, Mass.; Long Island College Hospital, Brooklyn, 1899; aged 71; died, January 8, in St. Luke's Hospital.

Olaf I. Refsdahl, Hayfield, Minn.; Northwestern University Medical School, Chicago, 1910; aged 58; died, January 14, in Austin of myocarditis.

Emanuel D. Block, Webster Groves, Mo.; St. Louis Medical College, 1878; aged 81; died, January 19, of chronic myocarditis and arteriosclerosis.

Reginald Eugene Sproston Challener, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1924; aged 36; died, January 21.

Clarence Eugene Howland, North Dartmouth, Mass.; New York University Medical College, 1897; aged 61; died, January 20, in Fall River.

Charles S. Parker, Baltimore; College of Physicians and Surgeons, Baltimore, 1881; aged 79; died, January 25, of chronic myocarditis.

James Maully Brown, McCormick, S. C.; University of the South Medical Department, Sewanee, Tenn., 1899; aged 59; died, January 11.

John D. Malott, Converse, Ind.; Medical College of Indiana, Indianapolis, 1898; aged 65; died, February 2, of cerebral hemorrhage.

Martin T. Ploughe, Kempton, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1898; aged 75; died, January 18.

David Armstrong @ Durant, Okla.; St. Louis College of Physicians and Surgeons, 1914; aged 59; died, January 28, of pneumonia.

Zeno Burt Babbitt, St. Petersburg, Fla.; Hahnemann Medical College of Philadelphia, 1890; aged 75; died, February 3.

Edward F. Harpel, Shamokin, Pa.; Hahnemann Medical College of Philadelphia, 1892; aged 67; was found dead, January 21.

Frederick Smith Park, Merion Station, Pa.; Medico-Chirurgical College of Philadelphia, 1909; aged 54; died, January 20.

Lorenzo Chapman, Grand Falls, N. B., Canada; Harvard University Medical School, Boston, 1893; aged 65; died, January 5.

George Daniel Lynch, Moravia, Iowa; Barnes Medical College, St. Louis, 1899; aged 64; died, January 21, of heart disease.

Alexander Forin, Edmonton, Alta., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1884; died, January 2.

Emanuel Stockberger, Milford, Ind. (licensed in Indiana in 1897); aged 84; died, January 24, of rheumatic heart disease.

James Clark Smith Akerly, Decoto, Calif.; Cooper Medical College, San Francisco, 1885; aged 76; died, January 17.

John Walter Key, Los Angeles; College of Physicians and Surgeons of San Francisco, 1901; aged 56; died, January 31.

John Reginald Jarvis @ Buffalo; University of Buffalo School of Medicine, 1928; aged 31; died, January 17.

William B. Stokes, Belton, Texas; Memphis (Tenn.) Hospital Medical College, 1904; aged 60; died, January 5.

Wilson Montgomery, Embro, Ont., Canada; Trinity Medical College, Toronto, 1891; aged 80; died, January 7.

Emma Augusta Kalbfleisch, Boston; Boston University School of Medicine, 1887; died, January 31.

Charles A. Boyd, San Jose, Calif.; Rush Medical College, Chicago, 1881; aged 82; died, January 30.

Bureau of Investigation

RATS—AND VITAMIN F(?) IN COSMETOLOGY

Rodents Make Supreme Sacrifice to Aid A. J. Pacini and Imogene Shepherd

Of late the daily life of the white rat (*Mus norvegicus-albinus*) has certainly been made less monotonous. Great grandfather rats, tough and battle scarred from numerous conflicts with lethal diseases, are sniffing with scientific disdain while great granddaughter rats undergo nutritional deficiency tests in the cause of beauty. Silky tails are being tailcured and hides assume a new sleekness. If the ladies of the species could speak we should no doubt see their pictures with their testimonials!

In an eight-page brochure published by the "Pharmaceutical Specialties Company, a division of Archer-Daniels-Midland Company," Mary Imogene Shepherd, Ph.G., says that "It is now definitely established that the complete removal of certain indispensable unsaturated fatty acids from the diet results in the appearance of 'deficiency' symptoms which involve: 1—the skin and epidermal appendages; 2—the endocrine glands; 3—certain of the viscera, in particular the kidneys; 4—the general state of nutrition; 5—and possibly the constitutional physiology that permits allergic susceptibility to take place."

Mr. August J. Pacini, of whom on various occasions mention has been made in these columns, states in the preface to the Shepherd contribution: "I am totally unaware of the existence anywhere of a cosmetic chemist that has experimented as widely as has Miss Mary Imogene Shepherd in the matter of evaluating vitamin F's place in cosmetic preparations." This unawareness on his part is perhaps explained by the fact that Miss Shepherd is the "Managing Director and Chief Chemist of the Powder Box," a "beauty shoppe" in the Charles A. Stevens & Company store, Chicago; moreover, if you visit the Seymour Building, 155 East Ohio Street, Chicago, you will find the following concerns and individuals listed for the fourth floor: Color Cosmetics, Edward M. Johnson, Ruth Nelson, Pacini Laboratories, Inc., Dr. A. J. Pacini, Pharmaceutical Specialties Company, Imogene Shepherd, Ltd., and F. R. Warner Products Company. It has been learned from a recent commercial report that the Warner concern discontinued business about a year ago and its activities were said to have been taken over by the Pacini Laboratories, Inc.

If you take the elevator to the fourth floor, you step directly into one office, there being no hall, and as no room numbers are given in the building directory, it seems evident that the occupants of the fourth floor may be closely associated.

Miss Shepherd is not the first young woman to announce unusual properties attributable to vitamin F. The Chicago *Herald and Examiner* of March 15, 1935, stated that a Miss Mildred Oncken had "... found she could prevent rats' 'snuffles' with vitamin F ..." Miss Oncken was working in the Pacini Laboratories, Inc., at 155 East Ohio Street at the time. Much of her work has had exposition in the *Illinois Medical Journal*. In the May 4, 1935, issue of the Chicago *Herald and Examiner* Dr. A. J. Pacini was credited with the statement that "Sex can, to a certain extent, be made to order if parents desiring a boy add quantities of vitamin E to an otherwise balanced diet ..." The evidence was said to be based on 7,000 rat experiments. What a jolly time rats must have in the interest of science!

Because of the extensive advertising campaign that has been carried on by the Pharmaceutical Specialties Company in the exploitation of vitamin F, much of which appears over the signature of August J. Pacini, the Bureau of Investigation has received many requests for information relative to Pacini.

In 1925 Pacini was giving a "practical course in standardized physiotherapy" and was the Director of the Biophysical Research Department of the Victor X-Ray Corporation of Chicago. The pamphlet that carried the announcement and prospectus of the course reproduced the likeness of A. J. Pacini with the suffix M.D. following the name.

In THE JOURNAL for Sept. 19, 1925, an article appeared on the "American Association for Medico-Physical Research." In

this article reference was made to A. J. Pacini, "M.D.," and to the fact that a most careful search had failed to disclose that any one of this name was ever graduated by a reputable medical college in the United States or was licensed to practice medicine in any state in the Union. After the article appeared in THE JOURNAL, Mr. Pacini wrote that, as he could not at that time disclose the history of his alleged graduation in medicine, he would discontinue the use of the suffix "M.D." From time to time it has been found impossible by various people to verify his various statements as to his undergraduate or his scientific education.

Ten years ago any expert in nutrition would have told you that the vitamins were five in number and were lettered—A, B, C, D and E. Today there are approximately twenty-five chemically different substances which have a vitamin effect. Many of these compounds have been chemically identified and some have been synthesized. The tendency of scientists is in the direction of naming these substances according to their chemical composition, but at the present time the name "vitamin" and the designation by letter is still commonly used. From the standpoint of human nutrition, the principal vitamins may be designated A, B or preferably B₁, C, or cevitamic acid, D, E and G, which recent reports have shown to be a mixture of factors.

The omission of F from the list of vitamins has an interesting history. When the Committee on Nomenclature of the American Society of Biological Chemists met a few years ago, it was chiefly concerned with the designation of the then newly discovered fractions of the vitamin B complex. Prof. H. C. Sherman of Columbia University suggested that the two best known components of the vitamin B complex might be called vitamins F and G. The committee retained the term vitamin G, but for the substance which Dr. Sherman called vitamin F it used the designation vitamin B. Latterly vitamin B has been referred to as vitamin B₁, which is the British name for this factor. There was thus no substance designated by recognized scientific organizations as vitamin F.

In 1928 Profs. H. M. Evans and G. O. Burr at the University of California reported some experiments on the beneficial effect of fat in the diet of the rat. They said, "The favorable substance in fats—possibly a new Vitamine (F)—unlike Vitamines A, D and E is not concentrated in the non-saponifiable fraction. It can be recognized in the fatty acid portion after saponification." In 1929 Dr. Burr, then at the University of Minnesota, reported a paper entitled "A New Deficiency Disease Produced by the Rigid Exclusion of Fat from the Diet." Rats fed on mixtures of isolated food substances carefully treated so as to extract all fat did not grow normally. In addition, many of the animals developed an abnormal condition of the skin, and a peculiar scaly condition of the tail which has been referred to as caudal necrosis. Other experiments confirming the importance of fat in the diet of the rat were reported by Drs. Ava Josephine McAmis, William E. Anderson and L. B. Mendel of Yale University. Burr showed later that certain fats were better than others. The most potent were those which contain a relatively high proportion of certain unsaturated or "essential" fatty acids. Linoleic acid was effective in minute traces. Practically all students of nutrition refer to the dietary factor described by Burr as the essential fatty acids and not as vitamin F.

Undisturbed by the fact that there is no substance properly known as vitamin F, certain commercial exploiters who are interested in trade and in science seized their opportunity. The scientists may not have had vitamin F, but the exploiters did.

From this brief discussion of the subject, it does seem that certain unsaturated fatty acids, such as linoleic acid, are essential to the diet of the rat, which, no doubt, is highly important to such rodent prima donnas as Mickey and Minnie Mouse. However, the ordinary householder need have no cause for alarm; the average larder contains sufficient quantities of unsaturated fatty acid to prevent such symptoms as scaliness of the skin, inflammation of the tip of the tail, dandruff, alopecia, irregular ovulation in the females and failure to mate in the males in the ordinary brown rat (*Mus decumanus*). Anyway, if the rats can't eat what's in the house, they should go hungry.

Correspondence

NECROSPERMIA AND VIABILITY OF SPERMATOZOA IN THE CERVICAL CANAL

To the Editor:—In his letter in *THE JOURNAL*, Nov. 7, 1936, page 1581, Dr. Max Huhner disagrees with certain observations reported by me in an article on "Duration of Sperm Cell Migration in the Uterine Secretions" in *THE JOURNAL*, June 27, 1936, page 2221. He supports an opinion given by him in 1921 to the effect that demonstration of living sperm cells in the cervical canal is a more accurate evaluation of male fertility than the examination of the direct condom specimen.

I desire to stress the important fact that an unfavorable appraisal of the husband's fertility, based solely on deficient motility or complete necrospERMIA, should never be made from a condom specimen. This statement is supported by ample evidence that the chemical constituents of certain condoms are deleterious to the semen in varying degrees and may impair or suspend sperm activity within a few moments. This condition is not applicable to all condoms, but greatly reduced or completely suspended sperm cell activity in a specimen otherwise presenting normal indexes of spermatogenesis should at once arouse suspicion of error in the technic of collection. The adverse influence of the condom and overheating by unnecessary efforts to preserve the warmth of the specimen are the most common explanations.

I am confident that the foregoing statement will be found explanatory of the conflicting observations made by one or more physicians on different occasions relative to specimen activity. I wish to take this opportunity to correct a statement in an article of which I was a co-author with Dr. Hotchkiss (Semen Appraisal, *THE JOURNAL*, Feb. 24, 1934, p. 587) in which three methods of collecting the semen specimen were mentioned, the condom after cleansing being included as the third and least desirable method. At about the time the paper was published, further research had caused us to eliminate completely the use of the condom. A compromise method involving the transfer of the specimen from the condom to a glass container was also tried and abandoned because the harmful effects of the former were so rapid in occasional instances.

I wish to state that none of my observations were made from condom specimens. Unless a standardized type of condom, proved to be harmless to the semen, is habitually used, specimens so collected may give conflicting results when compared with postcoital studies and, in my opinion, are of little scientific value.

WILLIAM H. CARY, M.D., New York.

ACETARSONE IN CONGENITAL SYPHILIS

To the Editor:—The controversy between Dr. H. N. Cole and Dr. Alfred S. Traisman (*THE JOURNAL*, March 6) as to the use of acetarsone in the treatment of congenital syphilis is important. I have treated syphilis in a large children's syphilis clinic since 1924 and have used neoarsphenamine and mercury, later sulfarsphenamine and mercury and bismuth therapy, and since March 1930 stovarsol, or acetarsone. During this period at the Children's Memorial Hospital we have treated approaching 300 cases and have had no fatality nor serious reaction from this drug. The therapeutic results are at least as good as those of the older methods.

Dr. Cole mentions the article of Maxwell and Glaser in which they treated twenty-one cases and had a death in one patient and a severe toxemia in another. Maxwell and Glaser followed a system of dosage by Tuscherer, which gave no consideration to age and weight. A baby of 8½ pounds (3.8 Kg.)

was given a dosage equal to that of a child of 10 years. For example, in case 1 a baby of 8½ pounds was given a maximum of 0.75 Gm. daily. The maximum used by Traisman, Rambar, Coppolino and many others who have worked with this drug would be 0.08 Gm. daily. That is, the Tuscherer dosage is about nine times as large as the dosage in general use.

I write because it would be very unfortunate to have such a valuable drug fall by the wayside.

HAROLD A. ROSENBAUM, M.D., Chicago.

Associate in Pediatrics, Northwestern University Medical School; Member of Medical Staff, Children's Memorial Hospital.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TUBERCULIN TEST—X-RAY EVIDENCES OF TUBERCULOSIS

To the Editor:—Will you please give the present status of a tuberculin test: The number of tests and the amount of tuberculin necessary accepted as establishing a negative. The meaning of a positive test in a patient negative clinically. The meaning of x-ray observations characteristic of past tuberculous infection in a child of 7 with repeated negative tuberculin tests. Please omit name.

M.D., Missouri.

ANSWER.—The original method of administering tuberculin as practiced by Koch was through a hypodermic needle into the subcutaneous tissues. Large doses were employed and in addition to a local reaction the physician carefully recorded any constitutional reaction, such as elevation of temperature. If there was a suspected lesion near the surface of the body, such as a cervical lymph node, one also watched for a focal reaction manifested by enlargement of the involved part, as well as tenderness. After the advent of the x-rays, suspected lesions in the lung were observed by serial films following the administration of tuberculin to determine whether there was any change in the appearance of the shadow. It was soon learned that the amount of tuberculin used in the subcutaneous test was too large and was capable of doing harm through the reactivation of lesions that were previously nonprogressive.

In 1907 Pirquet presented the epidermal test, which consisted of applying tuberculin to a small superficial scarification of the skin. By this method of administration not enough tuberculin was absorbed to produce a constitutional or focal reaction. However, a local reaction manifested by induration and hyperemia at and around the site of the tuberculin administration was good evidence of sensitization of the tissues to tuberculo-protein. Obviously, there was no measure of the dosage by this method, the scarification was not always produced to the same degree, and there was the possibility of the tuberculin being removed before a sufficient amount was absorbed to produce a reaction.

Numerous modifications of the epidermal test have been devised, such as the Moro test, which consisted of applying tuberculin to the surface of the skin without producing a scarification. This test has been perfected and described by Beatrice R. Lovett (The Percutaneous Tuberculin Reaction, *Am. J. Dis. Child.* 37:918 [May] 1929), who cleanses the skin with ether in order to remove the oil from the pores. A special preparation of tuberculin is then rubbed into the pores. When carefully performed, this test is as accurate as the Pirquet test. The reaction consists of papules scattered about the area and, in cases of high degree of allergy, folliculitis, with small vesicles or pustules and intense inflammation of the skin appear. Various tuberculin ointments are now available for this test.

More recently Ernst Wolff (*Am. Rev. Tuberc.* 27:308 [March] 1933) has described the tape test. After the skin has been carefully cleansed, a drop of tuberculin ointment the size of a pea is applied over the right side of the cleansed area, and over the left side a drop of control ointment is used. Both drops are then covered with pieces of adhesive tape 2 inches square. In forty-eight hours the tape is soaked with benzene and removed. Ten minutes later the reaction is observed. If

positive, the area over which the tuberculin ointment was applied shows papules, erythema and induration. Wolff finds that this test is generally comparable in results with the intracutaneous test of Mantoux in a dilution of 1:100.

In 1908 Mantoux presented the intracutaneous test, which consists of administering tuberculin of known strength in measured amount into the layers of the skin. This test gives one the advantage of administering an extremely small amount of tuberculin and if the tissues do not react the dose can be gradually increased. However, experience has shown that it is not necessary to begin with such small doses of tuberculin as Mantoux recommended. Although the epidermal tests, such as those presented by Pirquet, Moro and Wolff, are satisfactory when carefully administered, the intracutaneous test of Mantoux has gained favor among physicians until at present it is looked on as the standard method of administering the tuberculin test. Old tuberculin was for a long time the chief testing material, although it was known that it was only the protein content which produced the reaction. The amount of carbohydrates and other substances were so small that no harm could be produced by them. More recently Long and Seibert have prepared tuberculinoprotein in pure form, and their preparation is known as pure protein derivative. This is administered by the Mantoux method in the same manner as old tuberculin except for the difference in dosage. When one uses old tuberculin the usual procedure is to administer 0.01 mg. as the initial dose. This consists of 0.1 cc. of a dilution of 1:10,000. If no reaction occurs in from forty-eight to seventy-two hours, a second dose is given consisting of 1 mg. (0.1 cc. of a dilution of 1:100). If there is no reaction to this amount of tuberculin the individual being tested is usually thought to be free from foci of tubercle bacilli. Some workers prefer to use as the initial dose 0.1 mg. of tuberculin (1:1,000) and repeat the tests that show no reaction with 1 mg. Others employ 0.1 mg. as the only dose. A few workers have found a single dose test consisting of 1 mg. satisfactory. When one uses pure protein derivative, two tests are administered and the dosage for each test is indicated on the package. A good many workers are employing a single test dose of old tuberculin because of the large amount of work necessary in administering two tests for those negative to the first test. For example, if 100,000 persons are to be tested and only 10 per cent react positively to the first test, the remaining 90,000 must be retested. In fact, the work is almost doubled. Long is about to announce a single test dose of pure protein derivative which should save a great deal of time in the testing of large numbers of persons. Moreover, pure protein derivative is standardized so that its potency is the same whenever and wherever it is used. This statement cannot always be made concerning old tuberculin.

A positive tuberculin test has only one meaning; that is, the tissues have been sensitized to tuberculinoprotein. So far as is known there is nothing in nature ordinarily taken into the human body capable of sensitizing the tissues in this manner except tubercle bacilli which are forming or have formed tubercles. Therefore, a positive tuberculin reaction means that tubercle bacilli have entered the body through direct or indirect contact on the part of the infected individual with some person or animal suffering from tuberculosis or acting as a carrier and spreader of tubercle bacilli. Therefore a positive tuberculin reaction indicates the presence of a primary tuberculosis complex somewhere in the body.

This statement has been objected to on the ground that only 3 to 25 per cent of positive tuberculin reactors show evidence of the disease on x-ray films made of the chest. The answer to the objection is that an x-ray film of the chest includes only a small part of the human body. Not even all the lung is clearly visualized in this manner. The examination is indirect and brings to light only macroscopic lesions. In the lung hilus region it is often impossible to differentiate macroscopic tuberculous lesions from the shadows of normal structures. Indeed, it is only when sizable deposits of calcium have been laid down in the lesion that the x-ray film is of value in detecting areas of disease in this region.

A positive tuberculin reaction in a person negative clinically is usually found when only the primary complex is present. Indeed, there usually are no clinical manifestations from this form of tuberculosis except in a few persons whether they are infants, children or adults. About the time the tissues become highly allergic, there may be an elevation of temperature, lasting for a few days or a few weeks. The red cell sedimentation rate is definitely increased, but ordinarily the symptoms are not sufficient if present at all to lead the individual or close associates to believe that anything more than an acute cold or a mild attack of grip has developed and hence the physician is rarely consulted. Following these mild symptoms,

which are by no means present in all cases, the patient has the same sense of well being as the person who has not developed the primary complex.

No matter how well the positive tuberculin reactor may appear, he is likely to carry in the lesions of the primary complex living and virulent tubercle bacilli for many years and often for the remainder of his life. Moreover, his tissues are allergic to tuberculinoprotein and if tubercle bacilli in sufficient numbers at some subsequent time escape from the lesions of the primary complex or bacilli from exogenous sources reach the body and find lodgment on the allergic tissues, an intense reaction occurs which not infrequently results in necrosis of the tissues, and a destructive, symptom-producing and even fatal form of tuberculosis develops. This is true no matter where the bacilli of reinfection (from both endogenous and exogenous sources) find lodgment; if in the subarachnoid space, meningitis; if in the blood stream, miliary disease; if into the pleural space, tuberculous pleurisy, usually with effusion; if into the peritoneal cavity, tuberculous peritonitis; if in the lung or kidney, pulmonary or renal tuberculosis develop; and so on. Thus, the person who reacts positively to the test and is clinically negative today may in two or three months be dead of an acute form of tuberculosis, such as meningitis, which does not exist today. Again, the person who reacts positively to tuberculin and is negative clinically may in one to five years have serious, chronic, pulmonary or renal tuberculosis that does not exist today.

Unfortunately, after the primary complex is permitted to develop the medical profession has no specific method of holding it under control. There is no drug or mechanical procedure that destroys the bacilli or decreases the allergy of the tissues that has been found of practical value. The consoling fact is that approximately 80 per cent of positive reactors who are negative clinically do not develop reinfection forms of tuberculosis. However, evidence has accrued to show that approximately 20 per cent do present manifestations of clinical disease at some subsequent time. Unfortunately there is no method of determining whether the person with the positive tuberculin reaction who is negative clinically will fall into the 80 per cent or the 20 per cent group; therefore the only safe procedure is to examine periodically each positive tuberculin reactor, no matter how well he appears or in what age period of life. If tuberculous meningitis or miliary disease develops there is nothing the physician can do to save the patient's life in most cases. However, if one of the chronic forms of disease makes its appearance, the physician is able to detect the presence of the disease by modern methods of diagnosis. Indeed, there is an average period of approximately two and one-half years after chronic pulmonary tuberculosis can be detected before the patient has any sense of ill health whatever. It is during this period that treatment can be administered most successfully. Thus, a positive tuberculin reaction in a patient negative clinically may have a very significant meaning.

X-ray appearances characteristic of past tuberculous infection in a child of 7 with repeated negative tuberculin tests should always be seriously questioned, provided one is sure that the tuberculin used has not lost its potency. In the first place it is an absolute impossibility for any physician to determine etiology from a shadow cast on the x-ray film. Indeed, pathologists often refuse to give any statement concerning etiology of a lesion which they view directly at the postmortem table until they have studied it microscopically. While it is true that allergy may wane and finally become so slight that it cannot be detected by a positive tuberculin reaction, usually a number of years are required for this change to occur. Moreover, it apparently does not occur with great frequency. It is also true that all bacilli in the primary complex may die, soon after which time no tuberculinoprotein is being manufactured in the body to perpetuate the allergy of the tissues, so that it completely disappears. If calcium deposits large enough to cast shadows that can be visualized on an x-ray film have been laid down before this time, they may remain. However, from the evidence available this does not appear to be a frequent occurrence. Although attention has been called to the fact that blood vessels often cast shadows which simulate those produced by deposits of calcium, there is no doubt that many physicians are still interpreting blood vessel shadows as those of calcium deposits. A good example is that of a physician who had x-ray films made of the chests of more than 100 persons who appeared in good health. He took these films to another physician for interpretation. This physician reported evidence of calcium deposits in the hilus region in 97 per cent. He then took them to a second physician, who had no knowledge of any one else having interpreted them. The second physician reported evidence of calcium deposits in the hilus region in 3 per cent. In

a child of 7 years, one's diagnosis of tuberculosis is usually more accurate when based on the presence of a positive tuberculin reaction than when based on the presence of an x-ray film examination in the absence of a positive tuberculin reaction.

CALCULI OF SALIVARY GLANDS

To the Editor:—My wife, aged 40, has been troubled for the past five or six years with what appears to be an excess of calcium salts in the saliva. Most of this has been noted following a radical mastoid operation four years ago, although I do not feel that this has any bearing on the case. The condition was first noted by an excess deposit around the teeth at the roots. Her teeth were hard and white, and there were only about three cavities in the entire mouth, which had been taken care of. However, x-ray examination revealed that practically around all molar teeth and bicuspid teeth this deposit prevented the natural secretions from passing into the mouth and that the bony structure had been so eroded that the roots were just held into the bone by a small margin. There was no evidence of pyorrhea but the circulation of the gums was very poor, the result possibly in part of two attacks of malignant tertian malaria, quinine therapy and a subsequent anemic condition. Almost all these sound teeth had to be removed. On several occasions during the past three years she has had acute obstruction of the submaxillary ducts by stones. All these have been successfully passed without intervention. On one occasion three small stones worked their way to the submaxillary orifice and were removed with forceps. Last week she had all the symptoms of a stone in the left parotid duct. No x-ray examination was available but the parotid gland became swollen while she was eating and the postauricular glands enlarged. It was painful to eat and the mouth was dry. Two days later she told me she felt that the obstruction must have passed, for she felt a flow of liquid in the mouth and then the glandular swelling receded. I feel certain with the history of the case that this diagnosis was correct. Now could you explain this condition to me, if I have made the symptoms clear, and suggest some treatment to prevent the formation of these calculi? The reaction of her saliva is either slightly alkaline or neutral at all times and her oral hygiene is perfect, if such a thing can be. Other than a chronic sinusitis (frontal), her general health is very good. Kindly omit name. M.D., Virginia.

ANSWER.—There seems to be no known method of preventing the formation of calculi about the teeth or in the salivary glands. Their formation does not seem to be an error of metabolism, such as a high calcium content of the saliva, but rather they are of bacterial origin, the bacterial growth producing a change in the secretion, resulting in a calcium deposit about the bacterial matrix.

Frequent x-ray examinations of the submaxillary region by means of a dental film in the mouth should show the early presence of stones, so that they might be removed before they cause any trouble.

CHANGES IN LARYNX OF BOY AT PUBERTY

To the Editor:—What physical changes occur in the larynx of a boy at the age of puberty when his voice changes? Please omit name.

M.D., Pennsylvania.

ANSWER.—According to Quain's Anatomy, up to the age of puberty the larynx is similar in the male and female, the chief characteristics at that period being the small size and comparative slowness of the organ, and the smooth rounded form of the thyroid cartilage in front. In the female these conditions are permanent, excepting that a slight increase in size takes place. In the male, on the contrary, at the time of puberty, remarkable changes rapidly occur, and the larynx becomes more prominent and more perceptible at the upper part of the neck. Its cartilages become larger, thicker and stronger, and the alae of the thyroid cartilage project forward in front so as to form at their union with one another the prominent ridge of the pomum adami. At the same time the median notch on its upper border is considerably deepened. In consequence of these changes in the thyroid cartilage the distance between its angle in front and the arytenoid cartilages behind becomes greater and the vocal cords are necessarily lengthened. Hence the dimensions of the glottis, which at the time of puberty undergo an increase of about one third in the female, are nearly doubled in the male, and the adult male larynx becomes altogether one-third larger than that of the female. (Quain's Anatomy, edited by E. A. Schaefer and G. D. Thane, New York, Longmans, Green & Co., 1898, volume 3, part 4, p. 150.)

Stewart calls attention to the development of the voice in children as being of great interest. At the age of 6 years the boy's voice has a rather narrower range than the girl's in both directions. The boy's voice reaches its full height in the twelfth and its full depth in the thirteenth year, when the range is almost three octaves, its upper limit being a semitone higher than the girl's but its lower limit a whole tone deeper. When the voice "breaks" in boys at the age of puberty, it falls about an octave. The control of the vocal organs becomes so incomplete that only in one fourth of the cases can notes of sufficient

steadiness to be used in music be produced. The vocal cords, as may be seen with the laryngoscope, are frequently, though not always, congested. (Stewart, G. N.: Manual of Physiology, ed. 7, New York, William Wood & Co., 1914, p. 304.)

The larynx at puberty grows considerably, so that the vocal cords in males may increase as much as a centimeter, which is more than one third of the total length. In females the increase in length is considerably less, seldom more than 5 mm. In both sexes because of these changes the voice becomes lower, in the male at least as much as an entire octave. The change in the voice may take place over a considerable period. It may start in exceptional cases as early as at 8 years and, on the other hand, there have been cases observed in which at 18 the singing voice was still that of a child whereas the spoken voice was adult. In the majority, however, both the spoken voice and the singing voice have undergone adult changes. Locally there may be a mild redness of the epiglottis or the posterior portion of the glottis, the vocal cords remaining white. In other cases there is an increased redness and swelling of the mucous membrane of the larynx with the vocal cords also somewhat congested, with the condition in still others in between the two changes described. (Nadoleczny, M., in Denker, Alfred, and Kahler, Otto: Handbuch der Hals-, Nasen- und Ohrenheilkunde, volume 1, Luftwege und Mundhöhle, Berlin, Julius Springer and J. F. Bergmann, p. 638.)

PREVENTION AND TREATMENT OF MALARIA

To the Editor:—What do you consider the best treatment for malaria? I wish to know what you consider an adequate quinine dosage for the average case of malaria. What is your opinion regarding the use of atabrine and plasmochin in the treatment of malaria? Do you think it advisable to give prophylactic treatments for the prevention of malaria in a community where a great deal of malaria exists. If so, what do you advise as a prophylactic treatment for the prevention of malaria? Do you consider it safe to give quinine treatment in full therapeutic doses to a nursing mother? I am thinking of the possible danger of poisoning the nursing baby with quinine. There is a diversity of opinion on this subject and I am anxious to get these points cleared up. Please omit name.

M.D., South Carolina.

ANSWER.—The average case of malaria will be cured if the following quinine dosage is followed: 2 Gm. (30 grains) of quinine sulfate daily given in divided doses of 0.3 Gm. (5 grains) each at intervals of three hours until the acute symptoms have subsided. After this 0.65 Gm. (10 grains) of quinine sulfate a day should be administered for a period of eight weeks.

As the administration of plasmochin is accompanied frequently by toxic symptoms, it should be used with caution in the treatment of malaria. If gametocytes are present it may be given in conjunction with quinine in a dose not to exceed 0.01 Gm. daily for a period of six days. This drug should be used only for the purpose of destroying gametocytes.

Atabrine is undoubtedly an efficient drug for the treatment of malaria but owing to the fact that its toxic properties are still incompletely determined it is not recommended as a routine treatment in preference to quinine. In cases in which quinine cannot be given it should be used but never in doses larger than those usually recommended; i. e., 0.1 Gm. (1½ grains) three times daily for five successive days. In the treatment of hemoglobinuric fever, atabrine should be used in preference to quinine.

The question of the advisability of giving prophylactic treatment for prevention of malaria in a community where a great deal of malaria exists is still *sub judice*. The inefficiency of drugs in prophylaxis and the fact that in such a region they would have to be continued for long periods renders their use inadvisable for the general population. In the case of travelers in such regions, the employees of commercial concerns and troops operating in such regions it has been found that from 0.4 Gm. (6 grains) to 1 Gm. (15 grains) of quinine daily will prevent the development of symptoms of malaria, although this dosage will not prevent infection; for the latter reason the quinine has to be continued for several months after leaving the malarious area to be effective. It would be advisable under certain conditions to use quinine in this way as a prophylactic. The use of atabrine as a prophylactic cannot be recommended; in effective doses it quickly colors the skin yellow and may produce toxic effects in some persons.

An extensive discussion of the relative merits of quinine, atabrine and plasmochin in the treatment of the different types of malaria will be found in the *Quarterly Bulletin of the Health Organization, League of Nations* 2:181 (June) 1933; 4:643 (Dec.) 1935.

So far as possible poisoning of the baby is concerned it is considered safe to give quinine treatment in full therapeutic

dosage to a nursing mother, as there is little evidence that quinine is excreted to any extent in the milk. Practically all the drug taken into the body is excreted through the kidneys or destroyed within the body.

SENSITIVITY TO LIVER PREPARATIONS

To the Editor.—A woman, aged 43, single, has pernicious anemia of several years' standing. She will not take ventriculin because she says that it produces extreme nausea. Capsules of liver extract she regurgitates soon after swallowing. These of course also nauseate and in addition cause gastric distress. Because of failure with these methods I have continued the use of intramuscular injections of concentrated liver extract in solution. Treatment has not been continuously regular because she will not appear for treatment for a considerable period after becoming asymptomatic. About two years ago she had a violent anaphylactic shock with the usual rash, edema of all mucous surfaces as well as some skin surfaces (notably the lips) and difficult breathing, within thirty minutes following the intramuscular injection. This was relieved by epinephrine and codeine. Following this she took no treatment for some months. Then treatment was resumed with no marked reactions occurring. As previously stated, she discontinues treatment against my advice when she becomes asymptomatic. Following one of these periods I resumed treatment and she again had a severe shock as before, after about the third injection. Then after an interval of about three weeks she experienced another shock after another injection.

W. B. FILLINGER, M.D., Ovid, Mich.

ANSWER.—It would seem that the patient lacks emotional stability, as is evidenced by her lack of cooperation in the treatment and her regurgitant proclivities. Anaphylactic shock is an extremely remote possibility following the use of liver extract for pernicious anemia. Although individual variations in sensitivity to medication unquestionably occur, the origin of the anaphylactic reaction in this case must be questioned. Care should of course be taken that the material is not injected into a vein. Older preparations of liver extract contained histamine. Histamine reactions after treatment with liver extract have been reported in the literature. The newer preparations of liver are not known to contain histamine. Assuming that the patient may have an individual sensitivity to this drug, perhaps she could be desensitized by small doses, as is done in anaphylactic reactions with horse serum. Since the patient has pernicious anemia, the treatments that have been tried cannot be improved on. As there is evidence that the hematopoietic principle or principles are stored in the body, infrequent injections of larger amounts than are usually employed may suffice in a case such as this.

HEREDITY IN OPPENHEIM'S DISEASE— MYATONIA CONGENITA

To the Editor.—I have a patient, a mother, with two children, who are described to me as apparently subjects of Oppenheim's disease. These children are unable to stand or walk or use their arms except for a very little, or to hold up their heads well at 3 and 5 years of age. They masticate food and the sphincters are not affected. Their general condition is described as being first class. The mother is now pregnant again and I wish to have your opinion as to a third child being afflicted with the same trouble.

H. H. HARRISON, M.D., Asheville, N. C.

ANSWER.—There is some difference of opinion among neurologists regarding the question of Oppenheim's disease (myatonia congenita) being a hereditary and familial entity. Most of the opinions are that it is neither hereditary nor familial and that one of its most characteristic signs is that the disease tends to improve. Another type of atrophy that one sees occasionally is known as the Werdnig-Hoffman atrophy. This is an infantile condition and is both hereditary and familial and the prognosis is poor. It is possible that the two children have this type of atrophy. If this is the case, the present pregnancy may result in another similarly involved child.

TREATMENT OF ENDOCERVICITIS WITH ENLARGED UTERUS

To the Editor.—A woman, aged 44, normal in all other respects, with a long stringy mucoid discharge of several months' duration, secondary anemia, enlarged uterus about the size of a two months pregnancy, and a large eroded boggy cervix, has regular menstruation, with a larger amount of loss of blood for the first two or three days than normal. Secondary anemia is being satisfactorily treated. What forms of treatment would be advised in such a case?

M.D., Oregon.

ANSWER.—The stringy mucous discharge undoubtedly comes from the glands in the boggy cervix and may be controlled by one or more electric cauterization treatments. However, care must be exercised that the cautery incisions are not made too deep or too near the internal os. The secondary anemia must of course be overcome by various medicinal preparations and the proper diet, but if the excessive monthly flow is a factor in maintaining the secondary anemia it is advisable to stop the flow entirely, especially because the uterus is most likely one

that is generally called a "fibrotic" uterus. Since the patient is 44 years of age there is relatively little harm in producing an artificial menopause by inserting radium into the uterine cavity. In a uterus of this type, 50 mg. of radium should be left in the uterus for thirty hours. If the patient is of a nervous temperament it is better not to destroy the ovarian function by radium. The uterus should be removed vaginally. This operation is safer than an abdominal one. Furthermore, it will enable easy removal of the eroded, boggy cervix, which may lead to further trouble if left in situ even if radium is applied. If the patient is not a good surgical risk, radium should be used to control the bleeding, and the cervix should later be cauterized if necessary.

SENSITIVITY TO PICRIC ACID

To the Editor.—Please give in detail an approved method for desensitizing a person who is hypersensitive to picric acid and to picric acid compounds. The hypersensitivity is manifested by skin reactions which are limited for the most part to those portions of the skin with which the acid comes in contact. The various stages in the order of their appearance and the duration of each stage are as follows: (1) local erythema and intense itching beginning about twelve hours after contact and lasting from one to two days; (2) localized brawny edema with the formation of pin point to pin head size vesicles on the erythematous base, giving a feeling of puffiness, drying and smarting; this stage lasts from two to six days; (3) gradual disappearance of the vesicles followed by scaling of the superficial epithelium lasting from two to four days.

G. E. MARR, M.D., Hamilton, Ohio.

ANSWER.—There is no safe or effective method for immunizing against drugs in general and especially against chemicals producing contact dermatitis. The only practical procedure to be advised is the protection of exposed parts by the use of rubber gloves. If this is not possible a change of occupation is the only measure to be recommended.

TRUMPET PLAYING AND OTITIS MEDIA

To the Editor.—How much danger is there in forcing infection up into the eustachian tube and the middle ear by playing a trumpet while suffering from a mild acute rhinitis with moderate nasal obstruction from swelling of the inferior turbinates? I have a patient, aged 12 years, who has had repeated attacks of otitis media and he plays a trumpet. His last attack of middle ear infection followed a mild acute rhinitis and playing on the trumpet. Is the trumpet playing any factor in the ear infection in this case? Kindly advise whether he should omit the trumpet playing. Please omit name.

M.D., Colorado.

ANSWER.—It is not likely, but it is possible, that in the presence of a nasal obstruction trumpet playing might be responsible for attacks of otitis media. The forcible distention of the cheeks with air while playing this instrument coupled with nasal obstruction would present a situation similar to that known as the Valsalva method of inflating the ears. Should a rhinitis be present, the purulent infected material could be forced into the middle ear cavities. It might be wise in this particular case to cease trumpet playing at those times, at least, when a head cold is present.

HYPOGONADISM

To the Editor.—A boy, aged 14 years, who is well developed and nourished and whose past history is essentially negative except for frequent colds, was operated on for appendicitis five years ago. For the past five months he has been having "hot flashes" frequently and with apparently no relation to anything he does except possibly excitement; he has a headache after any moderate exertion, the cause of which I cannot locate. His body has the aspects of the female body, as also does his carriage and gait. His skin is of a soft texture, his hair is silky, and the distribution of the pubic hair is quite horizontal, as in the female. The penis is of normal size, and the testes are small but well formed. The rest of the body is essentially normal, as are also the laboratory data on the blood and urine. The boy's tendencies are to avoid masculine sports; however, he does like to watch them. Once in a while he plays football but invariably has a headache afterward. Incidentally, the boy has been babied by his mother since he was an infant—she wanted a girl. What is your diagnosis? What is the treatment of choice? Do you think the environmental circumstances predisposed to this condition (being babied)? What is the ultimate prognosis with treatment and without treatment?

M.D., Ohio.

ANSWER.—The fact that the boy has been babied by his mother would have a temporary psychic effect on his future conduct, but such a result will probably not be able to withstand the powerful influences of a normal sexual development. The patient may be given a few injections of the gonadotropic extract of pregnancy urine or placenta (autophysin, antuitrin-S, A. P. L., follutein and the like). Such patients may show marked growth of the external genitals, loss of weight and change to a more masculine bodily configuration after this treatment. Small doses of thyroid may be beneficial.

BILATERAL HYDRARTHROSIS—CHRONIC
SYNOVITIS OF KNEES

To the Editor:—A white man, aged 21, has bilateral hydrarthrosis of both knees. The onset came about two months after an acute gonorrheal infection. The gonorrhea had its onset one year ago. At present there is no discharge from the urethra, and smears are negative. The prostate is normal. The urine contained one pus albumin for about eight months but is now perfectly normal. The knees are painless and the fluid capacity as determined by aspiration is about 2 ounces (60 cc.) in each knee. I should like an expression as to what treatment would be most promising to relief. The Kahn test of the blood is negative and there are no other signs of syphilis. The general physical condition is very good. Please omit name.

M.D., Missouri.

ANSWER.—As the knee condition has existed for ten months, it can be classed as a chronic synovitis, probably gonorrheal in origin. The injection, through a fine hypodermic needle, of 2 cc. of 50 per cent compound solution of iodine into each knee joint, repeated in one week, will be beneficial. In some patients this causes a temporary increase in the synovial effusion, which subsides in two weeks after the second injection. The joint usually then becomes nearly or quite normal.

In case this method of treatment is not finally successful, the knees should be superheated in a baking apparatus for twenty minutes once a week.

The use of hyperpyrexia by the hypodermic injection of foreign proteins, such as typhoid vaccine, repeated once a week, may be of assistance.

EYE IRRITATION FROM OILED ROADS

To the Editor:—Kindly inform me as to the best method of caring for eye irritations resulting from oiling roads.

C. J. PATTHOFF, M.D., Springfield, Ill.

ANSWER.—Crude oil used for oiling dirt roads contains much kerosene and gasoline. Intense heat may drive off the gasoline, and the fumes may be irritating to the conjunctiva. The oiled dust entering the conjunctival sacs, when blown about, causes irritation from the kerosene as well as from the foreign bodies (dust particles). For workers, goggles should be used to protect against the dust.

For conjunctivitis resulting from the irritation, 1:1,000 solution of epinephrine used four times a day along with cold applications for ten to fifteen minutes makes the patient comfortable. A bland ointment such as boric acid ointment used in the conjunctival sac is the only other medication of any value.

ERGOT PREPARATIONS FOR HEADACHE AND
POST-TRAUMATIC HEADACHE

To the Editor:—In "Queries and Minor Notes" in THE JOURNAL January 30, page 416, is a discussion signed "M.D., Texas," entitled "Danger in Ergot Preparations for Headache," in which the description of a typical post-traumatic headache is given. I note that no attempt at treatment is given or suggested except that of the use of drugs. I believe that your answer is rather incomplete, as no mention is made of the use of spinal insufflation of air or section of the middle meningeal artery at the foramen spinosum or of any of its branches. Following the lead of Dr. Penfield of Montreal, many neurosurgeons are using the spinal insufflation of air with considerable success in the treatment of the post-traumatic symptoms. Many times the middle meningeal artery has been ligated at the foramen spinosum or isolated branches at other locations, with relief of certain types of post-traumatic headaches. Personal experiences with both these methods have convinced me that they are of great value in the treatment of the cases after proper study has been made. Naturally, I advise the use of the milder methods first, but after they have been proved of no avail or possibly dangerous the other methods give good results. It is necessary to give the patient careful individual examination and make as nearly accurate diagnosis as possible, before using them. I know of no bad results following either method.

JOHN D. GLECKLER, M.D., San Antonio, Texas.

HEIGHT-WEIGHT-AGE TABLES

To the Editor:—The letter concerning a height-weight-age formula (THE JOURNAL, February 20, p. 666) suggests that two additional kilograms may be of interest. One is the continental rule: Weight in kilograms = height in centimeters — 100. That is, a man 182 cm. tall should weigh 82 Kg.

The other is my own, derived from the Medico-Actuarial Mortality Investigation, and represents a rough approximation of optimal rather than average weights: Assuming that a man 5 feet tall should weigh 140 pounds at age 20, add 4 pounds for each additional inch in height, and subtract a pound for each year beyond age 20. Thus, a man 5 feet 10 inches tall should weigh $140 + 40 = 180$ pounds at age 20, 170 pounds at age 30 and 160 pounds at age 40. At extremes of age and height the results are rather startling, but in general the table will be within 10 pounds of the optimal range, i. e., the weight accompanied by the lowest mortality.

ROBERT W. BUCK, M.D., Boston.

Council on Medical Education
and HospitalsANNUAL CONGRESS ON MEDICAL EDU-
CATION AND LICENSUREThirty-Third Annual Meeting, held in Chicago,
Feb. 15 and 16, 1937

(Continued from page 1201)

DR. JAMES N. BAKER, Montgomery, Ala., in the Chair
THE FEDERATION OF STATE MEDICAL
BOARDS

FEBRUARY 15—AFTERNOON

Medical Licensure as It Relates to the Practice
of Medicine

DR. EDWARD H. CARY, Dallas, Texas: Those who studied the medical schools at the end of the nineteenth century recognized that little progress could be made in improving the purely commercial schools or in eliminating the low grade institutions without the cooperation of the state licensing boards. As time has elapsed, higher standards have been established in harmony with the ideals of the high type practitioners serving on the licensing boards. The conjoined contribution of the American Medical Association and the Federation of State Boards of Medical Examiners toward higher standards should be appreciated. A generally recognized fact is that graduates of class A medical schools who appear before their state boards experience little difficulty in passing fair technical examinations. With well equipped and acceptable candidates, the question could be raised whether or not the certificate from the National Board of Medical Examiners would be sufficient requirement of examination in medical licensure. If so, many units of licensure that exist in the forty-eight states would be largely disposed of.

Any effort to reeducate the people in the United States to disregard the established idea of regulating medical standards through recognized state boards would in all probability meet the same opposition as would an attempt to abolish freedom of worship or freedom of speech. The members of the boards are usually selected not only for their scientific knowledge which makes them suitable members but for their political acumen as well. Collectively, the board is recognized as a part of administrative government. Doctors should realize the importance of contacts with those who run governments, and such contacts should be conserved and made effective in the public interest. It has been found that medicine can support any measure definitely beneficial to the people and in so doing protects its own interest.

Practitioners in recent years have become acutely conscious of impending legislation affecting their interest. Medicine today in this country would be in a sad plight if it were not organized. Eternal vigilance is required with respect to the many laws and bills touching on medicine and the methods of medical practice. It is impossible to know what political implications may be projected by laymen who are concerned about the methods of practice of medicine. There are those who have manifested a tendency to determine for the profession and the people just what innovations are best. The medical profession has resisted this idea. It believes that in an orderly manner the leaders of medicine, who in a democratic way have had placed on their shoulders such responsibility, will be able to determine the consensus of the profession. These appointed men reflect the general attitude of the profession of medicine toward proposed variations in medical practice. We believe, too, that a solution for the multiple economic and social problems confronting medicine can be ascertained only after consistent and open-minded study of the problems on the part of those leaders deeply interested in conditions as they exist and as they know they should exist in this mechanical or technological age. It is untrue that the medical profession is resisting an orderly transition in its relationship to society. But only through the advantages of their vast experience and knowledge of human needs and a careful analysis of the social

problems can medical leaders point out advisable changes in the interest of both profession and the people.

Various professions are being subjected to pressure based on a desire on the part of the masses to receive the benefits of the learning of its members at a cost which requires little perspicacity on their part. This being true, the dental profession has the same urge to utilize its whole machinery of organization in cooperation with the medical profession to harmonize professional views so that at once we may resist any unwarranted invasion on the rights and privileges which should come to those who prepare themselves for special service and who have in the main utilized their best efforts for public good. Other professions, such as pharmacy and law, are more or less subjected to similar propaganda for change. We must not separate the interests of pharmacy and its board of licensure from medicine and dentistry; their interests are so interwoven that respect and cooperation, one for the other, may be easily commanded. We cannot say as much for the legal profession, yet after all the effort of the American Bar Association to reorganize somewhat along the lines of the American Medical Association will eventuate in better lawyers and high ethical standards. When this is accomplished, the professions mentioned will find themselves more closely allied in their ability to study mutual problems and likely reach helpful conclusions. No professional group wishes to retard the blessings to be derived by the people from advantages of education and experience, but it behooves the leaders of the professions to consider the distribution of these so-called blessings, so that they may be generously bestowed without breaking down the fundamental bases that underlie and support the framework of all education and its happy output.

Years ago the drift of medical graduates away from the country into the cities was recognized. A few thought that lowering standards for the country practitioner would solve the problem. It was not difficult to meet this argument by pointing out that the poorly equipped practitioners, particularly the cultists, succeeded only in cities; in fact, they rarely practiced except in densely populated communities, where their mistakes would be less noticeable. It seems that the trend now is more in the direction of medical men going back to the country than was the case for several years. The board of licensure and the medical profession should definitely cooperate in this problem. The Committee on Legislative Activities of the American Medical Association reported last year to the Board of Trustees that in certain high places the charge had been made that the medical licensure boards apparently were negligent in bringing about the revocation of licenses of the violators of the Harrison Narcotic Act, regardless of whether or not the addicts had been convicted in court of gross misconduct in prescribing narcotics or of gross incompetence in the practice of medicine. It would seem possible for the boards of licensure to find a way to revoke the medical license of this type of practitioner. The profession should take quick and definite action to expel such a man from the county medical society, but we must cooperate to see that the punishment goes further. It is interesting to note that in states like Pennsylvania and New York this narcotic situation is so well in hand that it is not considered of any great moment by the officials of law. The great state of Illinois is not quite so fortunate.

Definitely the interests of the medical profession and the boards of licensure are interrelated. We should be wide awake to the abuse of these special privileges and fight hard to rid the profession of the men who claim the right to practice medicine but violate its obligations. I say this advisedly without recrimination but to urge that all physicians join forces to suppress a great evil. Official Washington feels that it cannot handle successfully the addicts of the profession, whether they have been convicted or not, unless they are supported by wholehearted cooperation on the part of the medical profession and the medical boards of licensure. The board of licensure has found, through long years of experience, that the office of the district attorney and other legal routine has not been effectual in handling illegal practitioners. The development of evidence necessary to substantiate accusations and actually convict the wrongdoer is a highly specialized task. The boards of medical licensure are primarily concerned in protecting the people

against illegal practitioners and quacks. No one can question their unbiased interest in the people. The medical profession is equally unbiased and diligent in conserving the best interest of the people whom it strives to serve unselfishly and well, but who will concede this point?

DISCUSSION

DR. E. SANBORN SMITH, Kirksville, Mo.: I should like to ask of Dr. Cary what arguments were advanced in behalf of the annual registration of physicians? I should like to have Dr. Cary tell us how they have accomplished it in Texas.

DR. C. B. WRIGHT, Minneapolis: We have had the registration law for a number of years in Minnesota. I was instrumental in helping such a law to be passed. We had some opposition from the profession itself and from the profession outside the state. The men we called in consultation from other states felt that it was not fair to the doctors to tell them to pay a reregistration fee to help enforce the law against these malefactors. This was the argument: First, the reregistration of physicians is very important, because in going over the list of men who had passed the board examination we found there were many men who had died some number of years ago, and other men were actually practicing under their names, under their certificates. We also found there were many men who were registered in the state of Minnesota who had moved away and had quit practice. We had no idea as to how many men there were actually in that state practicing medicine. The second thing is the fee. When we went to these men who had passed the basic science law in the legislature and appeared before the committees, we had great difficulty in convincing them, and of course we had a great deal of opposition against the basic science law by the cults and the irregular practitioners. We knew and we were told by the men, by the various committee members and the public health committees, that if we wanted a reregistration we would have to pay for it ourselves, because the legislature would not pass any law or give any appropriation for that purpose. We decided that a reregistration fee which we paid ourselves and which we ourselves controlled through the board would be more valuable. As the money for our board comes not from an appropriation but from a tax that we ourselves pay, that money is pretty well controlled. We feel that we were wise ten years ago in having a reregistration law passed; we were wise in having the reregistration fee, which gives money enough to hire an able investigator, who has done wonderful work in raising the standards and clarifying the situation in Minnesota. Our board wasn't on a high plane before we passed our medical practice act about ten years ago, but we were able to get into that medical practice act this requirement, that the council of the state medical association should nominate three men to the state board of medical examiners. It has been a very important thing in guiding governors to make good appointments.

DR. I. D. METZGER, Pittsburgh: The state of Pennsylvania in 1925 put through a registration act, which was the first act that was passed among the various states. The fee is \$1. No fee would have been attached except for the fact that it is impossible to get any doctor or any one else to register unless they are made to pay. This fee originally was allotted to the state board of medical education and licensure for enforcement of the act. Within three weeks after that time, a law was passed requiring all fees to go into the state treasury and be returned to the various boards by enactment through the legislature. The result was that we had our money thrown into the treasury and we had to get it back. We got it back without much trouble and have had it ever since. Following our registration act in medicine, within a few years a registration act was passed for all the various other boards, some seventeen acting under the department of public instruction. This included the nurses' board, the dental board, the architects' board and others. It has been a very effective measure. The method of procedure now is to have an enforcement officer secured through the attorney general's office, acting under the department of public instruction. His full duty is to enforce the laws of the various boards. He has eighteen or twenty investigators, each delegated to certain portions of the state, and he investigates for all the boards in that particular field. The enforcement officer is in close touch with the various

district attorneys and counties and leads them in the direction of prosecutions. They have been effective because of that fact. It takes away the charge that doctors are trying to defend themselves. We wouldn't think of going back to the old form of having no registration act. It gives the public knowledge of those who are actually entitled to practice. That I think is a very effective means of controlling those who are not licensed. With regard to the art of medicine, last year in my paper I deplored the fact that we had no technic by which we could judge the real genius of a doctor. If a man knew enough, we licensed him to practice. He might not be able to practice at all. We lost something when we quit the apprenticeship system, which was in effect before we had the regular courses in medicine, the preceptor plan. The young man who contemplated the study of medicine would go around to the preceptor and see the various types of work he had to do, the types of cases he had to treat, and, before he got far, he said "I don't want that sort of thing in my life," and he quit. Another man going around and seeing all these various cases of accidents and all that sort of thing would say "That is what I want to do. It is a challenge to me." The medical schools could do something of that type in the aptitude test which is required of medical students now. Why can't we have some technic by which we can sort them out as to whether they are adapted to the study of medicine, not whether they can study or whether they can think or whether they can reason? That is what the aptitude test does now. It fails to touch the very thing we need in the acquisition of medical students.

DR. HAROLD RYPINS, Albany, N. Y.: In New York we have subdivided the functions of those licensing physicians, that is, the state board, and the functions of those who try to get rid of the bad physicians, which is the so-called Medical Grievance Committee. In answer to the question as to how the annual registration assists this particular body, I may say that it assists very largely by providing the necessary funds for having due process of law. We have set aside from the funds derived from the annual registration sufficient money to have two assistant attorney generals who do nothing but act as counsel to the Medical Grievance Committee. We hold a regular court, which is limited to complaints against physicians, in the same way any civil court would hold a trial. The Grievance Committee of New York has now heard over 500 complaints against physicians; about 250 of those are unfounded complaints against physicians; that is, there are just as many complaints against physicians which should not be brought as those which should be brought. The committee has two separate functions. It attempts to discipline those physicians who are acting improperly. We have taken away some forty licenses. We have put about thirty men on probation for one or two years, and we have formally reprimanded and disciplined several dozen physicians. On the other hand, where we have 250 complaints from people, such as "My child had diphtheria and the doctor did the wrong thing and the child died," or "The child was killed from a mastoid operation," there the same committee has had the opportunity to hear these complaints in detail, to allow the physician to make a statement, and to attempt to explain to the complaining individuals that the medical profession has done what was right and proper under the circumstances. We have had annual registration for ten years. I think the profession is satisfied that it is getting its \$2 worth, even though this year the money is being diverted to the state treasury. We have in that law, however, the fact that all fees, fines and penalties derived from the prosecution of these illegal practitioners shall also be allocated to the use of the medical department. In that way the \$2, which in New York State amounts to about \$40,000, is raised to about \$50,000. The medical profession has a right to ask the legislature for these fines, because, as Dr. Wright pointed out, the medical profession is paying out of its own pockets for what should be a tax-paying state function.

DR. ROY B. HARRISON, New Orleans: If memory serves me correctly, California was the first to have registration, and Louisiana was second. We have had it over twenty years. It is written into our law that we have the power to suspend and to revoke licenses. I think if the laws had written into them that the states can suspend and revoke for certain causes, there

wouldn't be any trouble with the violator. We try them and, if we find sufficient evidence, we take the licenses away. The annual registration, as far as Louisiana is concerned, has been very successful.

DR. J. R. NEAL, Springfield, Ill.: Illinois does not have a registration law. In our department of registration and education, as in Pennsylvania, a similar number of boards exist, seventeen professional, trades and occupations. All those but the two professions of dentistry and medicine do pay an annual registration. That money goes into the state treasury and has to be reappropriated to the department. The department has a bureau of investigation. We can't see where the other trades and occupations get any better service from the punitive side of the picture than do the physicians. I have often wondered what is the status of the physician who neglects to reregister and then is sued for malpractice or is sued for practicing medicine without a legal status so to do.

DR. RYPINS: So far as New York is concerned, the law states that the only punishment for failure to reregister is a fine of not more than \$1 for each month of failure.

DR. EDWARD H. CARY, Dallas, Texas: In Texas we realized early that the function of the county attorney, for instance, was to prosecute offenders of the law. The medical profession found that the county attorney, who in many instances had no interest in the matter, frequently had influence brought to bear on him, which caused him not to be interested in the punishment of the individual. In addition to that the county attorney did not stimulate any activity from any source that would bring about information of a special character which would be good in the court. So these things, along with others, justified an appeal to the medical society throughout the state of Texas to submit to a registration law. The board of examiners immediately found it necessary, when it had this much money, to employ the kind of special agents such as detectives, who go over the state and develop the facts that might appertain to some individual and then to put them before the county attorney and bring pressure to bear through the local doctors and others on the county attorney. From that time on I think the board of licensure has been more effective. After long years of experience I realize the importance of whole-hearted cooperation between the practitioners of medicine and the licensing boards. As chairman of the Committee on Legislative Activities of the American Medical Association, I realize how necessary it is for us to have the cooperation of all those forces throughout the United States which can be utilized intelligently at once, to bring to bear some kind of pressure here and there which would aid us in stopping legislation that is not proper. We should be deeply interested in combining the influence of the boards of medical licensure, the boards of dental licensure, the pharmacy boards, the American Medical Association and all, to be well equipped with information and to be thoroughly cooperative, so that we would be able at any moment to use our forces throughout the nation where we want to use them.

DR. THOMAS J. CROWE, Dallas, Texas: Dr. Cary made one slight mistake with reference to the money from the annual registration. It is deposited with the state but in a special registration fund and drawn on only by the state board, on the signature of the secretary and the president of the board, to prevent any one man from handling the money of the board. It is the only thing for the medical profession. I think it is their salvation if the states will adopt some form of registration, one that will provide for official prosecutors.

The Fallacy of Spinal Adjustment

DR. THOMAS J. CROWE, Dallas, Texas: I shall direct attention to a discussion of the nervous system, the spine, and the exhibits with which I hope to prove the fallacy of spinal adjustment. This mounted spine shows nerves and ligaments as they are found on dissection. Observe its five divisions: cervical (neck), thoracic (ribbed), lumbar (loin), sacral (hip) and coccygeal (four lower vertebrae). The sacral and coccygeal divisions, being fused, are practically one bone. The cervical vertebrae are smaller than the thoracic and lumbar. The transverse processes are short and show a foramen on each side for passage of the vertebral arteries, which are life savers when

in slashing the throat both carotids are severed. The spinous processes of all except the seventh, the first prominence felt on running the finger down the back of the neck, are short, turned sharply downward, overlapping from above down, and are deeply buried—from $1\frac{1}{2}$ inches above to three-fourths inch below—by the ligamentous nucha, which extends from the back of the head to the spine of the seventh cervical vertebra, being strongly attached to all the vertebrae between. The nucha is the part on which the wrestler plants a rabbit punch with force sufficient to somersault an opponent, without injury to the spine or vertebrae. The articular processes of the cervical vertebrae, except the two upper ones, axis and atlas, slant from before backward and from the sides inward and downward, so that one cannot be moved appreciably without carrying the one above or the one below it, even when its strong ligaments and the nucha have been removed. On the upper surface of the third cervical vertebra is an upstanding tubercle which fits into a deep depression on the corresponding under surface of the one above it, the axis, fixing the latter so that its long perpendicular odontoid process, which passes through the canal of the first vertebra, the atlas, thus fixing securely the odontoid, which by a strong transverse ligament is held against the anterior arch of the atlas, to which the head is attached, thus forming a pivot on which the atlas rotates when the head is turned from side to side. The ligaments of the cervical vertebrae are so much more resistant than the bony parts that they hold even when the bony parts have been fractured or crushed.

Except that they are larger, their articular processes more sharply slanted and more deeply interlocked by bony processes, preventing movement, the spinous processes much longer and not turned sharply downward, and show the points to which the ribs are firmly attached, what has been said of the cervical vertebrae is true of the thoracic and the lumbar, except that the lumbar vertebrae have no ribs attached. When the thoracic and lumbar divisions are placed in their natural positions movement is impossible, even without support of their binding ligaments. The vertebrae of the sacral and coccygeal divisions, being fused into practically one bone, need not be considered.

All the intervertebral foramina are three times the diameter of the nerves passing through them; a thick cushion of fatty tissue surrounds each nerve, holding it in the center of the foramen, and safely protecting it against pressure even under extraordinary conditions. Except in case of fracture or crushing of a vertebra or laceration of its powerful ligaments, it is impossible to dislocate or subluxate a single vertebra to the point of pinching the nerves passing through its foramen.

Any movement of a thoracic vertebra must carry a rib with it or tear it from its attachment. Further, the articular processes are so deeply interlocked that one of them could not be moved without lifting it and all above it from one-fourth to one-half inch and carrying all superimposed structures with it, in order to release it from the interlocking socket of the one below. The nineteen powerful ligaments of the spine are powerful enough to resist a force sufficient to fracture, even crush, the dense bony parts of the vertebrae and reduce the softer body part to a powder, as proved by actual test.

The surprising thing about the subluxated or slipped vertebra is that, according to adjusters, it will not stay put; that, unlike other dislocated bones, and notwithstanding its interlocking articulations, intervertebral fibrocartilage, supporting ribs and numerous sustaining ligaments, it has to be readjusted every day or two, regardless of what ails the unfortunate patient—whether whooping cough or stone in the kidney. It sounds like the story of the Indian doctors who cure people by throwing them into a fit. Having shown the contacts of the cerebrospinal nerves with those of the autonomic system; that the ganglionated autonomic system gives nonmyelinated gray filaments to all the spinal nerves but receives in return myelinated white filaments from only thirteen anterior roots of the cord, and these are grouped in only four ganglia of the sympathetic division of the autonomic; that more than half of the autonomic system has no connection whatever with the spinal cord; that the ganglia of the autonomic, even the intrinsic ganglion of an organ, will maintain its function after it has been freed of other innervation; that the sturdy interlocking articular processes of the vertebrae, intervertebral fibrocartilage, supporting ribs,

nucha and numerous powerful ligaments—actual specimens and charts of which are presented—all serve to make the manual movement of a vertebra in a living person impossible, except when the bone is fractured or crushed by a powerful blow or a crushing force (when the ligaments usually hold so that traction produces realignment of the fragments), I submit this paper for consideration and decision as to whether the claims made for the beneficence of spinal adjustment should be regarded as fact or fallacy.

DISCUSSION

DR. THOMAS J. CROWE, Dallas, Texas: The paper was not intended as a criticism of method at all, but I hear in the courthouse all the time about the spinal adjustment business. We shall never get anywhere until the public realizes what scientific medicine means.

The Doctor and the Narcotic Violator

DR. R. L. SENSENICH, South Bend, Ind.: The Bureau of Narcotics reported the detection of 5,200 criminal violations of the Harrison Narcotic law in 1935 and conviction in 2,065 cases in the same year. There is nothing in the Harrison Narcotic Act or in the laws of the various states prohibiting treatment, reasonably planned and carried out, in an effort to effect a cure of narcotic addiction. It should, however, be emphasized that any type of ambulant treatment of average addicts, outside of institutions, uncontrolled and dependent on the voluntary reduction of the narcotic, is recognized to be ineffective. From this basis such treatment must be admitted in itself to be a violation of narcotic laws by the administering physician. Even treatment in institutions not organized for treatment of narcotic addiction and without specially trained personnel for the care of addicts is discouragingly unsuccessful. Narcotic addiction has a psychologic basis, and the performance of any cure is dependent on the intelligence of the patient, adequacy of the psychologic adjustment, and completeness of the personnel and environmental rehabilitation attained. Obviously, little can be accomplished without institutional and sociological facilities such as are not now available to the average physician. It would seem proper for the medical profession to encourage broadening of the activities of ethical institutions under competent medical management to include such supervision and assistance after discharge as would make possible some salvage from this group of addicts. Some might necessarily be treated at public expense, but no progress can be made in the reduction of existing addiction without institutional treatment. For the confirmed addict little can be done when personality defects make rehabilitation impossible. A study of 946 addicts in 1935 revealed an extremely high criminal record, as reported by the Bureau of Narcotics of the Treasury Department.

What manner of individual is the medical narcotic violator? A study was made of available histories of physicians convicted of narcotic violations. The following is a description of the narcotic violators studied: The average age determined was 60; the youngest was 41 and the oldest 67. Thirty per cent were of foreign birth; 20 per cent were natives of this country; in 50 per cent, places of birth were not recorded. The pre-medical education of 10 per cent was reported in foreign institutions, 30 per cent in American universities, and in 60 per cent there was no record. The medical education of the group was as follows: Two were not graduates in medicine. Fifty per cent of the medical schools from which graduation was reported are extinct and were not of acceptable standing according to the standards of medical education at the time the men were graduated. Only one physician in the group indicated interest in any specialty, that being public health work. Thirty per cent of the number were convicted of other criminal offenses in addition to violation of the Harrison Narcotic Act, falsification of government reports, and forgery of prescriptions, incidental to the narcotic violations. Fifty per cent of the number repeated the violation of narcotic laws after release, some having served two or three terms of imprisonment. Twenty per cent of the number, in the course of their trials for violation of narcotic laws, admitted narcotic addiction.

When the state agency whose duty it is to enforce the narcotic laws disregards conviction in federal court for acts which are also violations of neglected state laws, in themselves sufficient basis for disciplinary action, it tends to break down respect for

the law and the manner of its enforcement. Judgment of physicians is sometimes swayed by the implied doubt as to the fairness of the conviction, the character of the evidence or the importance of the law. Irked by the annoyance of required records, and narcotic license and tax, it is easy to lend sympathetic ear to the individual who complained that he was convicted on a technicality. Color is given to this statement when the state licensing body which has the records of the case, or may readily obtain them, chooses to disregard the conviction. Federal authorities have repeatedly stated to the Committee on Legislative Activities that no action is brought against a physician until it is established that he is a conscious violator of the law in a major respect, and then only after he has been warned to cease the violation and given opportunity to comply. The names of those known to be addicts, and names of those convicted of narcotic violations are furnished to the proper state licensing agencies by federal authorities, and not to the private physician or his local medical society. The by-laws of constituent and component societies of the American Medical Association should contain specific provisions that conviction of federal or state narcotic violation shall constitute a cause for expulsion from the medical society. Even with this provision, action may be neglected because no member wishes to take the initiative in invoking the expulsion clause. Action should then be instituted by the state association or by the Judicial Council of the American Medical Association, as continuation of individuals, convicted of crime, in membership of medical societies reflects unfavorably on the whole group. The physician may disapprove of a suspected delinquent on the basis of information personally acquired. The status of the violator is directly governed by the action of the state licensing body in whom authority to judge and take disciplinary action is invested.

Some state licensing boards apparently operate effectively, but there is reason to believe that other states operate ineffectively. Inadequate or cumbersome legal structures should be corrected. The uniform narcotic law, with minor modifications to meet special needs or fit into the legal structure of the various states, offers some advantages. The medical profession might well assist in promoting advisable changes in law. In the routine administration of laws, making certain actions mandatory and others optional only within certain limits, the broader purpose of the administrative unit apparently is sometimes forgotten. There should be the closest cooperation between the private physician and the state licensing board in dealing with the narcotic violator. Recognizing the importance of maintaining high medical standards, and the responsibility of organized medicine to the public, the doctor will support the just administration of laws relating to the narcotic violator.

A Lawyer's Point of View on the Narcotic Problem

MR. HERMAN B. CARLSON, Des Moines, Iowa: To enforce the narcotic statutes without consideration of humane impulses and the conservation of the victim, whether vender or addict, is not altogether a simple problem, nor is it easy to conclude that is the thing to do. The attention of the world has been gripped by the pronouncement of a war lord in China that all drug addicts who have not given up the habit by Jan. 1, 1937, are to be executed. Indeed, according to newspaper reports more than a hundred were at a single execution rite shot and killed in the Chinese manner. It seems that hundreds of thousands more are doomed to that same punishment. We in America believe that the drug addict is more unfortunate than vicious, and while strict enforcement of penalties is justified, we acknowledge not our wisdom but our poverty in understanding, because we know of no better remedy.

State officials are sometimes criticised because reported violations are not followed through to prosecution, revocation of license to practice and confinement of the vender. On the theory that fire can best be fought by fire, law enforcers and investigators who measure their achievements in statistics and not in the betterment of men have adopted the stool pigeon method of ferreting out the offender. Too frequently a victim must be found by the stool pigeon or he doesn't keep his job. As a rule the least culpable are the least suspicious and the most easily "entrapped." The penalties of internal revenue violations and threatened prosecution scare the doctor and he just doesn't know what to do. His honor, his reputation and,

most of all, his family's reputation is best preserved by having the least said. He compromises and pays his penalty. Shall he have his license to practice revoked? Possibly human intelligence in the inflicting of penalties should not be used. This is not the view of the Federal Bureau of Narcotics, for Mr. H. J. Anslinger, commissioner, in the proceedings of this congress in 1934, page 53, said: "A compromise is usually an admission that one cannot go through with the prosecution. Cases are compromised for a number of reasons: Sometimes witnesses are in another jurisdiction or have died or have left the service. We never compromise a case unless the United States attorney definitely makes a statement that he approves of a compromise and does not believe the case should be prosecuted." It seems to me therefore that when a delinquent physician has been reported and he has compromised we must consider him as one of whom suspicion is justified and he should be fairly well watched. He deserves admonition but hardly prosecution. It has been my effort not to plunge into a prosecution or revocation. I have felt I should make independent inquiry; doctors are usually poor lawyers. I have discovered doctors who, without the advice of counsel or appreciation of the inherent consequences, have pleaded guilty as an easy way out. I may have erred but I have used my best judgment in arriving at a conclusion as to whether I should insist on revocation.

Licenses have been revoked and suspended and will continue to be revoked and suspended. In some cases it is the prosecutor's duty to be vigorous and relentless and in some instances to temper justice with mercy.

I have felt that a wholesale revocation of medical licenses would serve no good purpose in developing confidence of the public in the physicians. I have felt that the profession cannot retain its standing and merit unless out of it are driven those few parasitic members who use a fine calling as a screen to iniquitous traffic. For them I have no plea for leniency. I have felt that most doctors are entitled to a helping hand of a prosecutor if there is manhood left worthy to salvage; if the danger is not too big.

Every member of the profession owes it to himself, to his professional brother, to the profession and to the community to save and not destroy the senses of the citizen. He must not, he dare not and he cannot traffic in drugs for addicts and survive.

DISCUSSION ON NARCOTICS

DR. WILLIAM C. WOODWARD, Chicago: There has been criticism leveled at the profession because of the failure of its examining boards to act properly on evidence submitted to them that certain members of the profession are drug addicts and therefore presumably not capable of practicing their profession with safety to the public. The complaint is not that they do not revoke the licenses of drug addicts but rather that they don't even hear the evidence in the cases when it is offered to them. There are various degrees of culpability in violations of that character, but that doesn't excuse the board from saying to the Commissioner of Narcotics, when he submits the evidence to them that a man has been convicted of violating the local law or the federal law, "Let us have your evidence. We will hear the case, and after we have heard the evidence we will determine what to do and assume the responsibility for it." Again, the criticism is not of their unwillingness to revoke the license but primarily of the unwillingness of the board to hear the evidence and to assume the responsibility for allowing a person convicted of violating the law to continue as a practitioner, when it is practically certain he will continue to violate the law at every opportunity. Something has been said here with respect to the conviction of these men through the use of stool pigeons. I hardly think my legal brother is going to assume that many of the physicians who have been convicted of violating the Harrison Narcotic Act have been convicted through the use of stool pigeons.

DR. WALTER L. BIERRING, Des Moines, Iowa: Every single one in Iowa.

DR. WOODWARD: A stool pigeon is used because the law enforcement officers have substantial reason to believe that the man is violating the law; if it can be shown in court that there is no substantial reason, the evidence will be thrown out.

Those convictions in Iowa rather reflect on the legal profession there as well as on the medical profession, because the evidence of stool pigeons would have been thrown out, if the statement that has just been made by the president of the State Board of Health of Iowa is correct. I do not believe that the Federation of State Medical Boards or the individual members of the federation can afford to go on record as being unwilling to hear the evidence and as unwilling, after having heard the evidence, to assume the full responsibility for saying to the public "Dr. So-and-So is an addict but we are going to let him practice. Dr. So-and-So has been convicted of violating the state or federal narcotic law but we think that won't do much harm. We will assume responsibility for that, and we are going to let him go."

DR. WALTER L. TREADWAY, Washington, D. C.: It is significant that this federation has on three occasions in the past several years undertaken to discuss the subject of the seriousness of narcotic drugs and their relationship to the medical profession. I believe that this problem can perhaps best be met through an educational program, through an understanding, through conferences of this sort, and through an appreciation on the part of the licensing agencies of the several jurisdictions as to the seriousness of this problem. Several years ago, I think in 1931, there was a series of articles in *THE JOURNAL*, prepared by a group of men representing the various specialties of medicine, on the indispensable uses of narcotic drugs. They were put out in book form and, like all first editions, contained many errors, perhaps. We have been restudying that situation with the idea of formulating for the general profession an informative memorandum that could be handed to a man who was suspected or who had been buying in excess of the quantities of narcotic drugs that would be needed in ordinary practice. In some instances a man who has one foot on the ethical side and the other just on the outside of the profession will buy large quantities of drugs, either to take for himself or to dispense or prostitute his profession for the satisfaction of addiction. When an enforcement man comes to visit him, he says "I have a cancer patient, and I have been administering these drugs in this inoperable case." It is remarkable how one can manage a cancerous patient on a small amount of opium. Men at the Pondville State Hospital in Massachusetts, assisted by one of our officers, demonstrated that many cases could be handled with codeine and with acetylsalicylic acid. Sometimes the claims of these practicing physicians that they need large quantities of opium for the management of cancerous cases are not in keeping with the indispensable uses of these drugs. The profession has developed a custom in the use of drugs. For example, when the quantity of drugs necessary for medicinal and scientific purposes in the United States is analyzed each year to fix the quantity of raw materials to be imported, it is found that the retailers and the physicians in different parts of the country use a different quantity of drugs. For example, to take a state which has a homogeneous profession, a great many of the practicing physicians in Indiana are graduates of the University of Indiana. One finds within that state a low per capita consumption, in a legitimate channel, in the use of morphine, and a relatively high per capita consumption of codeine. Some of the other states present an altogether different picture, a large per capita consumption of morphine. I think that some of that morphine is being used ill advisedly and, in some instances, it is being used directly in contravention of the law. I should like to mention the cooperation that we have been receiving since the government opened the first narcotic farm at Lexington, Ky. That institution has 1,000 beds. Those eligible for admission are those convicted of offenses against the United States, those who have been placed on probation by courts of jurisdiction, one condition of probation being that they go to this farm for treatment, to remain until cured; and, third, the voluntary case. We have no facilities for women. In several states adjoining Kentucky the licensing boards that have had physicians who were a little irregular have said "Now here the government has facilities. You go to this institution as a voluntary case and get yourself on your feet, and when you return we will allow you to practice over here, but if you kick over the traces another time we will revoke your license." The success that we have had with those people

who have been coerced and have had something to lose has been extraordinary. Sometimes a man gets into a mental attitude of life and continues the use of these drugs, and then suddenly some one gives him a chance or an opportunity for getting on his feet and he is able to come back. If an addict is brought before a federal court and the sentence is stayed, the court may place such a person on probation for a period of five years. That means he goes to the institution for a year, six months, or what not, and when he leaves he returns again to the jurisdiction of the probation officer, the federal government exercising supervision over him for the remainder of the five years. That is the only social set-up which the government has. We are going to have a second institution at Fort Worth, Texas, that will have 1,200 beds. That is an attempt on the part of the federal government toward a partial solution of this so-called addiction problem. We have been agreeably surprised with the results obtained in the operation of the first institution at Lexington, and we hope that the probation clause of the law will be used to rehabilitate, if possible, the men of the profession who might be somewhat irregular but might be given an opportunity or a chance to come back.

DR. I. D. METZGER, Pittsburgh: We have a method of procedure in Pennsylvania that helps us in the administration of narcotic cases. We have a division of narcotics under the bureau of health which acts administratively in respect to these cases. A number of doctors are under suspicion. They are warned. They are told about the danger of revocation. Many of them steer clear of coming to the focal point in respect to the matter. That helps us mightily. When the case is presented to the board, there is evidence presented which proves the fact. The evidence is gained in this way: Under the Pennsylvania law, all narcotic drugs must be reported to this division in Harrisburg, by pharmacists, at the end of the month. Of course, narcotics cover several other dangerous drugs. That narcotic division sorts out these prescriptions, finds out that a certain person has purchased a lot of narcotics and prescribed them, and, through its investigators, it finds out the method by which they have been disposed. I am afraid that a lot of our young doctors are led to prescribing narcotics in an inordinate manner, because they are taught to do that in hospitals. I want to give that warning here. We have found in Pennsylvania certain hospitals out of which have come young doctors who served as interns who are all using much more of this type of drug than they should. We found other hospitals in which doctors who have been trained in those hospitals rarely use narcotics. We ought to get back into the hospitals and sound a warning to members of the staffs of the hospitals, and we are doing it in our state, to see if we cannot shut off this initiation in the course of training of the young doctor of the inordinate use of narcotics.

DR. J. F. DU BOIS, Sauk Center, Minn.: This subject is pertinent to Minnesota. It seems to me that, if our examining boards can be in close touch with the federal department, many prosecutions by the federal department could be prevented. We can chastise our doctors or put them on probation, and if they don't listen to that they can be taken care of more harshly.

DR. R. L. SENSENICH, South Bend, Ind.: I tried to develop in my paper the fact that there may be difficulties about the administration of the law. The thing I have tried to stress is this: Let us deal with the narcotic problem in such a way that we shall leave no doubt as to how it is being handled. We can count on the medical profession standing back of us and cooperating in the administration of these laws on a safe and sound basis.

DR. ERWIN SCHENK, Des Moines, Iowa: So long as the federal courts convict, why do they not withhold the permit to use narcotic drugs until that person is reinstated? Why does it come up to the boards to revoke?

DR. WOODWARD: The Federal Narcotic Bureau has no authority to revoke the permit and can have none, under the federal constitution. A man's right to practice medicine, including the use of narcotic drugs, depends on a grant from the state. The most the federal government can do is to regulate the exercise of that right, not forbid it.

MR. HERMAN B. CARLSON, Des Moines, Iowa: The constitutionality of the Harrison Narcotic Law is based on the

fact that it is a revenue measure, and the physicians who have been arrested or who have compromised cases have found that it is a revenue measure.

Some Problems in Medical Licensure of Massachusetts

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: The medical practice act in Massachusetts is one of the first in the United States to be drawn, and it has never been materially changed since it was enacted in 1893. The seven physicians on the board are appointed by the governor for a term of seven years. There is no permanent executive or administrative officer, such as many boards have. The act provides that not more than three board members—a minority—may be members of the same incorporated medical society, and that no member may be from the faculty of a medical school. When the act was drawn there was apparently more than one really strong or solid system of medicine. As time passed, the various types or cults of the practice of medicine have faded from the field and now only one real form of medical practice is taught—the regular school. With the passing out of these cults their respective medical societies have dwindled in strength to almost nothing, yet our laws have not been altered. As a result, our board never has a majority who are members of the American Medical Association or of the state society. To prevent the creation of a second examining board at the urgent demand of a very small but well organized minority, the governor appointed an osteopath to the board, and each succeeding governor has appointed an osteopath when the seven year term of that appointee has expired. The state society, with a membership of about 5,000, is not by law permitted to have more than a minority representation on the state board. The small minority of 6,000 practitioners of the state always has a majority representation. The personnel of the board is therefore not a true or fair representative body of the majority of our practitioners, and a large number who might be very constructive and able board members are not eligible. The restriction as to board personnel is therefore one of the problems of medical licensure in Massachusetts.

Our medical practice act compels us to take for examination any person who is graduated from a high school or its equivalent and who has received a degree of M.D. or its equivalent from any incorporated and legally chartered school. Practically we have to admit for examination anybody who has a degree in medicine irrespective of the school from which the applicant comes. And they seem to come to Massachusetts in hordes from all over the world. During 1931-1935 we accepted for examination graduates from sixty-nine schools that are approved as class A or in good standing by the American Medical Association. During the same period we accepted graduates from twenty-nine schools that are not recognized by the American Medical Association or are classed as "not approved," a total of ninety-eight schools. All told, there were 2,003 applicants for examination. Of these, 712 (35 per cent) came from the approved schools and 1,291 (65 per cent) from the nonapproved schools. We passed and registered by examination 518 graduates from the approved schools, 83 per cent of these applicants, or 29 per cent of all applicants. In the same period we failed to pass or refused to register by examination 1,073 graduates from the nonapproved schools, 83 per cent of those from the nonapproved schools, or 53 per cent of the total number of all applicants. The total number of failures of all the 2,003 applicants was 1,188 (59 per cent). The graduates of the approved schools accounted for about 9 per cent and those from the nonapproved schools for about 91 per cent of these 1,188 failures.

Our law provides that the applicant shall be examined in seventeen subjects. We divide these seventeen subjects into seven groups of ten questions each. Each board member examines one group. The result is that the examinations are hodge podge and a smattering of this and that subject with equal evaluation of each. An applicant may fail to pass any of the clinical subjects and yet receive high enough marks in the premedical and nonclinical subjects to give him a high enough percentage mark to be certified. Another applicant may receive relatively high marks in the clinical subjects and because of low ratings in his premedical and nonclinical sub-

jects fail to attain a sufficiently high percentage rating to be licensed. There is no provision in our act for oral examination or an inquiry into the applicant's personal qualifications to practice medicine. We license or refuse to license applicants entirely on the results of these smattering written tests of the applicant's academic knowledge.

I will mention a few other problems of licensure in my state which I will not discuss: The reexamination of applicants who have repeatedly failed; it is not uncommon to reexamine an applicant from ten to fifteen times and a few have taken the examinations more than twenty times—we have no privilege to refuse their applications for reexamination. The examination of physicians registered in other states who wish to practice during the summer months in the various resorts of Massachusetts; most of these applicants are practitioners of ability and good repute, yet our law does not permit us to give them any special or oral examination. The reinstatement of physicians whose registrations have been suspended or revoked because of gross professional misconduct. Lastly, the ever increasing amount of insidious pressure that is put on the individual board members by some persons in the state government or by some persons close to it to favor this or that applicant for registration irrespective of the applicant's personal or academic qualifications. Often the least qualified applicants seem to have the most influential backing. It is rather rare to have anybody speak a good word for a graduate of an approved school.

Our problems in medical licensure in Massachusetts, therefore, are due almost solely to an out-of-date and clumsy medical practice act. It could be probably entirely rewritten if the state medical society would show real interest in changing it. There seems, however, no such interest. Instead, there seems to be an apathy bordering on an aversion of the society to do anything that will raise or improve the standard of practice in Massachusetts by changing the medical practice act. The backing of the society is absolutely essential before any real good can be accomplished. The board has from time to time submitted bills to the general court to improve the act, but it has met with very little success at the legislative committee hearings. At these hearings the rooms have usually been crowded with an organized and active group of nonmembers of the state society—usually graduates of the so-called nonapproved schools who are opposed to the making of any change. Usually a member or two from the state society has been present to register his approval of the board's proposal, but their efforts have been feeble as compared with the large organized groups of nonsociety members. As a result, practically no material improvement in the act has ever been accomplished. It is my opinion that none ever will be made until the state society shows an interest.

DISCUSSION

DR. I. D. METZGER, Pittsburgh: I should like to get a vote on the reexaminations. How many boards here give only one examination? (Three.) How many give two on the same fee? (Five.) How many give three on the same fee? (Three.) How many give an indefinite number on the same fee? (One.) I think the limitations in the law have been changed. They used to have it open to all, as you have, but that is being changed in all the states now. Our board will give two examinations. They may not take the third examination until they have had a year of work which has been outlined by the board. In our board they either fail or do not fail. They take the whole examination again. They must qualify by having had a year's work, approved by the board, before they may enter into another examination. They get two throws if they want to, on the second trial.

DR. STEPHEN RUSHMORE, Boston: Through my familiarity with the unrecognized medical schools in Massachusetts (and I have been in varying contact with some of them) we have learned how to evade the law. The students in one of the schools told me that, in their course on legal medicine, they were told never to break the law; it is unnecessary; you can always get around it. So the way we have evaded the law in Massachusetts concerning membership in the state medical society is to have a man who is not a member of the society, who he or his friends think may become eligible. So we have

on the board six men; three of them are nonmembers of the state medical society and three members who have resigned from the state medical society during their membership on the board. So from the point of view of informal representation the society has six members on the board; formally, of course, only three. I was one of those who resigned from the medical society to go on the board. Of course, it is a matter of astonishment to a great many people to find that the secretary of the board is not a member of the medical society. The board asked that it might have the power of approval of medical schools. The legislature, in its wisdom, saw fit to create a new organization consisting of the commissioner of public health, the commissioner of education, and the secretary of the board of registration in medicine. These three have the power of approval of colleges, so far as they give premedical education, and of medical schools. The act does not become effective for two years, Jan. 1, 1939, so that we are at present on the old basis and have to admit to examination practically anybody who comes along. We did manage to reject one man from a medical school in Chicago, a school that was run in connection with chiropractic. He had not had four years in the school, although he had gotten his degree. He has to be in the school four years. The late development is that, since this law has gone into effect concerning the approving authority, and that means schools of osteopathy will have to meet, so far as our board is concerned, exactly the same standards as other medical schools, the osteopaths have introduced a bill to have a separate board of registration for osteopathy. Also, the chiropodists have introduced a bill. They want to break away from the board of registration in medicine. Of course, we have the chiropractors every year. The board has again this year introduced a bill providing for annual registration of physicians. They introduced a bill last year and the Massachusetts state society opposed it. I think there is a fair chance that the society will oppose it again this year. Then the question will come up as to whether it is wise to drive it through over their opposition or whether it is better to wait another year and try to educate the society. As you can understand from our remarks, the society needs educating.

DR. H. J. LEHNHOFF, Lincoln, Neb.: I should like to ask the representative what the attitude of the medical schools is with regard to the condition.

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: Three medical schools of the state are approved by the Council on Medical Education and Hospitals, and there are three schools which are not approved. The three schools which were disapproved are content, and the three schools that were approved are content. So it is kind of a no man's land, that all the approved schools' men are accepted for examination and the nonapproved schools' men are accepted for examination. They are all content so far as that part of the law goes.

DR. J. EARL MCINTYRE, Lansing, Mich.: I should like to ask Dr. Knowlton why the Massachusetts law makes it necessary for those from other states to pass the examination but it accepts National Board rating.

DR. KNOWLTON: That was done before I was on the board, I don't know what board, but we accept those who pass the National Board, on their ratings.

DR. MCINTYRE: Is there any other reason why the other states should be discriminated against?

DR. KNOWLTON: The law has never been changed. Usually if men want to come into the state from outside they have to take the regular examination which the recent graduates have to take.

DR. ROY B. HARRISON, New Orleans: Did I understand that it is written in your law that you will accept members who passed the National Board but that you will not accept applicants from out of the state?

DR. KNOWLTON: If the man passes the National Board, we register him in our state, but we are not allowed to accept applicants for registration who are registered in other states, on other boards' qualifications. We can't accept the say-so of any board as to the qualifications of a man. We have to examine him in writing. The law specifically says so.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 3, page 1207.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*, May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country on April 17. *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given in St. Louis, April 23, and at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklín, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Pennsylvania Reciprocity and Endorsement Report

Dr. James A. Newpher, secretary, State Board of Medical Education and Licensure, reports 15 physicians licensed by reciprocity and 5 physicians licensed by endorsement from Sept. 15 through Dec. 18, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine.....	(1934)		Maryland
State University of Iowa College of Medicine.....	(1931)		Iowa
University of Louisville School of Medicine.....	(1927)		Kentucky
Johns Hopkins University School of Medicine.....	(1929)		Illinois
(1932) Maryland			
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1929)		Maryland
Harvard University Medical School.....	(1920)		Mass.
University of Rochester School of Medicine.....	(1933)		New York
Hahnemann Medical College and Hospital of Philadelphia.....	(1917)	(1915), (1934)	New Jersey
Jefferson Medical College of Philadelphia.....	(1912)		R. Island
Temple University School of Medicine.....	(1933)		California
University of Pittsburgh School of Medicine.....	(1933)		Maryland
University of Texas School of Medicine.....	(1929)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical ..	"	"	B. M. Ex.
Yale University Sc ..	"	"	B. M. Ex.
Harvard University ..	"	"	B. M. Ex.
Cornell University ..	"	"	B. M. Ex.
Temple University ..	"	"	B. M. Ex.

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 35 physicians licensed by reciprocity and 6 physicians licensed by endorsement on Oct. 13, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine.....	(1935)		Arkansas
Howard University Col. of Medicine.....	(1932) N. Car., (1935)		Maryland
Rush Medical College ..	"	"	Wisconsin
Indiana Univ ..	"	"	Indiana
University of ..	"	"	Kentucky
Johns Hopkins University School of Med....	(1920), (1931, 2)		Maryland
University of Michigan Dept. of Medicine and Surgery.....	(1908)		Michigan
University of Michigan Medical School ..	(1923), (1935)		Michigan
Wayne University College of ..	"	"	Michigan
St. Louis University School of ..	"	"	Missouri
Washington University School of ..	"	"	Missouri
Creighton University School of ..	"	"	Nebraska
University of Nebraska College of Medicine..	(1923), (1933)		Nebraska
New York Homeopathic Medical Col. and Flower Hosp.....	(1934)		New York
Syracuse University College of Medicine.....	(1927)		New York

Hahnemann Medical College and Hospital of Philadelphia.....	(1934), (1935)	Penna.
Jefferson Medical College of Philadelphia.....	(1934)	Penna.
University of Pennsylvania Department of Medicine.....	(1907)	Maryland
University of Pennsylvania School of Medicine.....	(1925)	Penna.
University of Pittsburgh School of		Penna.
Meharry Medical College.....		Tennessee
Vanderbilt University School of Medicine.....	(1934, 2)	Tennessee
Medical College of Virginia.....	(1929)	Virginia
University of Virginia Department of Medicine.....	(1933)	Virginia

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad. of
College of Medical Evangelists.....	(1936, 2)	N. B. M. Ex.
Loyola University School of Medicine.....	(1935)	N. B. M. Ex.
Rush Medical College.....	(1934)	N. B. M. Ex.
Washington University School of Medicine.....	(1929)	N. B. M. Ex.
University of Pennsylvania School of Medicine.....	(1935)	N. B. M. Ex.

Book Notices

Textbook of General Surgery. By Warren H. Cole, M.D., F.A.C.S., Professor of Surgery, University of Illinois College of Medicine, and Robert Elman, M.D., Associate Professor of Surgery, Washington University School of Medicine, Saint Louis. Cloth. Price, \$10. Pp. 1,031, with 559 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1936.

Cole and Elman deserve considerable credit for this new book. They have undertaken the enormous task of compiling in book form the fundamentals of general surgery as presented to their students, especially those in the junior year. In their introduction they state that the material used is based on lectures to undergraduates and intended primarily as a textbook for their use. Their ability to condense such a subject is based on years of teaching experience, not only in the laboratory but also in clinical medicine. The sequence of the material is well arranged not only for the beginner but also for the advanced student and general practitioner. The fundamentals of inflammation and repair, surgical bacteriology and immunology, asepsis and antisepsis, and the spread and localizations of infections are first presented. A chapter is devoted to each, emphasizing that fundamental knowledge of anatomy, physiology and bacteriology is prerequisite for an undertaking of surgical diseases. Surgical conditions of the various systems are then taken up in order. The descriptions are classic, and typical illustrations of the disease condition are given. The illustrations are rather diagrammatic and do not come up to the standard of the rest of the book. All portray the point in question; a few are excellent, but many could have been replaced by reproductions of actual photographs. The authors cover the subject fully in its broader concepts and do not attempt to discuss the minute details and atypical conditions. The tremendous task of condensing into one book the fundamentals of general surgery is excellently done. The work is modern and authentic, and it presents the present-day views in a concise and clear manner. Of great value is the complete bibliography of authoritative literature which follows each chapter and which serves as a further reference for those interested. In the two chapters on gynecology and genitourinary surgery an attempt is made to cover in a few pages these surgical specialties. They are less valuable than the other chapters of the book. At the conclusion is given a short discussion on obtaining a history and physical examination of the patient, in which the importance of a good history is stressed and the principles of an adequate physical examination are outlined, both of which are too frequently overlooked. The work is of merit and its value to the student and practitioner cannot be questioned.

La hipofisis: Sus funciones en la clínica. Por el Dr. Mario Scheitengart, docent libre de patología médica de la Facultad de medicina de Buenos Aires. Paper. Pp. 223, with 42 illustrations. Buenos Aires: Aniceto Lopez, 1936.

In this volume the author has endeavored to describe in more or less condensed form the normal functions of the pituitary gland and certain clinical syndromes caused by the malfunction of one or more of its components. The main emphasis is placed on the more generally known principles, such as the growth, gonadotropic, thyrotropic and metabolic fractions. They are dealt with splendidly from a physiologic point of view and to a certain extent also from the histologic, developmental and pathologic side. One misses, however, an adequate description of the almost equally well known para-

thyrotropic, diabetogenic, adrenotropic and lactogenic hormones, as well as those derived from the pars intermedia and the posterior lobe. This is unfortunate, since the title of the book would lead one to assume that all the parts of the hypophysis are considered with equal thoroughness. In describing the clinical disease entities the author has taken his material from the literature and added to it case reports from his personal experience. There are a number of fine illustrations of patients representing various pituitary endocrinopathies, and reproductions of roentgenograms and histologic slides. Some of these illustrations are borrowed from standard textbooks, partly American and partly foreign, while many are originals. It seems that the clinical sections are not nearly so adequately treated as the theoretical portions of the book, even though the title would suggest this to be primarily a clinical treatise. This is probably due to the evident leaning of the author toward the fundamental sciences. The sections devoted to the specific dynamic action of foods and to the metabolism of fats, proteins and carbohydrates, together with that dealing with the part played by the pituitary on salt and water balance, are among the best in the book. Here too the laboratory has fared better than the clinic. At the end of every chapter there is a list of bibliographic references. Considering the size of the book, they are well chosen and cover a good many in languages which the average American student can read. While no fully encompassing view of the clinical features of pituitary diseases is presented, Dr. Scheitengart covers well the principal facts of our present knowledge of this complicated gland. It should therefore furnish a valuable addition to the library of the practicing physician.

Recent Advances in Allergy (Asthma, Hay-Fever, Eczema, Migraine, Etc.). By George W. Bray, M.B., Ch.M., M.R.C.P., Physician in Charge of Children's Department, Prince of Wales Hospital, London. With foreword by Arthur F. Hurst, M.A., M.D., F.R.C.P., Senior Physician, Guy's Hospital. Third edition. Cloth. Price, \$5. Pp. 517, with 101 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1937.

The appearance of three editions during the last five years indicates the popularity of this book. In his preface to the first edition the author said "My aim in writing this book is to provide in a handy and inexpensive form a résumé of our present state of knowledge and the trend of modern research in allergy." This objective he has admirably accomplished in the third edition. The present edition differs from the previous one in that thirteen pages have been added to the text. In addition, many chapters have been revised, and new references to agranulocytic angina, parotid swellings, acne vulgaris and allergy to yeasts have been added. Each section is introduced by a paragraph of definitions followed in every instance by an excellent historical sketch in which the knowledge of the subject under discussion is traced from its earliest reference in medical literature to the present. Each clinical condition discussed is opened by a historical review followed by a concise discussion of etiology, pathology, symptoms, diagnosis, differential diagnosis and treatment. The section is usually closed by the author's digest of what has been said and his own views on the subject. His presentation of the theoretical discussions of allergy are thorough but necessarily brief. He discusses most of the important work, and the bibliography at the end of each chapter is unusually complete, especially for recent work. He has the ability to abstract the literature faithfully and invariably succeeds in presenting the main facts. His discussion of the nervous and psychic factor is excellent. The chapters dealing with allergy of the skin and especially infantile eczema are well done. He is a confirmed believer in the efficacy of hydrochloric acid by mouth in most allergic conditions, especially in the presence of hypochlorhydria. A few of the features that probably would be objectionable to most authorities working in allergy are (1) the use of "group testing," (2) the use of one syringe and needle for all intracutaneous tests (washing with saline solution after each test), (3) the use of "shotgun" mixtures in therapy, e. g., his use of "mixed inhalants solution," and (4) the presentation of the "rush method," which might conceivably lead to severe reactions and even fatalities in the hands of the inexperienced. His discussion of pollinosis is, of course, limited, owing to the presence of only tree and grass hay fever in England. One gains the impression that Bray treats his inhalant cases by

the injection of the offending allergen rather than by its removal. This is not looked on as the best method of therapy by most authorities.

Grundriss der Histologie und mikroskopischen Anatomie des Menschen: Biologie der mikroskopischen Größenordnung. Von Hans Petersen. Paper. Price, 6.90 marks. Pp. 169, with 197 illustrations. Berlin: Julius Springer, 1936.

The ground usually covered by textbooks of histology is presented in the form of a crisp enumeration of the essential facts. The order of presentation is the cell, certain methods used in routine histologic procedures, the elementary tissues, the circulatory apparatus, skeletal and muscular tissues, the skin, the nervous system (brief), sense organs, the gastrointestinal tract, the respiratory system, the serous membranes, the endocrine organs, and the excretory and genital organs. It is not a quiz compend to prepare the student for the identification of organs and tissues with minimal effort but is an account of minute anatomy from the physiologic point of view "following the tradition of German culture." The tone is highly dogmatic and there is no suggestion that anything still remains to be done in the field. It appears to be intended as a summary of more or less well established "facts" to be used in connection with a series of lectures which would take up most of the time usually allotted to minute anatomy in the medical curriculum. The illustrations are almost all line drawings with a minimum of detail. There is one colored plate with five detailed drawings and a photomicrograph.

La pression moyenne de l'homme: A l'état normal et pathologique. Par H. Vaquez et P. Gley. Paper. Price, 25 francs. Pp. 127, with 57 illustrations. Paris: Masson & Cie, 1936.

This monograph is an exposition of the principles involved in determining the mean pressure in man by the oscillographic method, together with a discussion of its significance in normal and ill individuals. The book is well suited for the reader interested in a fairly succinct exposition of the voluminous work that has appeared in the French literature concerning this method. The first part deals with the theoretical basis of oscillography, which is by and large an expansion of Marey's law. The complications induced by reflected waves in such a system are considered. The more recent work on this subject is presented as well as the theories that have been proposed recently by various French schools. One is left with the impression that some of the explanations are more complicated than they need to be. The second section deals with methodology and is clear and succinct as regards both the use of the Boullite oscillograph and the direct methods. The next section deals with the values obtained by these methods in normal individuals. The several types of oscillographs obtained are described and their cause is given. The effect of athletic training on the mean blood pressure is considered. The last section deals with the mean pressure in pathologic states, particularly hypertension, glaucoma, eclampsia, cardiac hypertrophy, hypotension, valvular defects and heart failure. Some case reports with orthodiagrams are presented. This work should be interesting to cardiologists, particularly since it represents one of the last contributions of the dean of French cardiologists, the late Prof. Henri Vaquez.

Psychology and the Social Order: An Introduction to the Dynamic Study of Social Fields. By J. F. Brown, Ph.D., Associate Professor of Psychology at the University of Kansas. Cloth. Price, \$3.50. Pp. 529, with 76 illustrations. New York & London: McGraw-Hill Book Company, Inc., 1936.

For all their intimate knowledge of the sufferings of individual members of society, physicians are often accused of lacking a broad view of social problems. Psychiatrists and psychoanalysts in particular are often said to expect of their patients radical reformations and happy adjustments regardless of the difficulties to which they may be subjected by social and economic forces. All this is natural in view of the empirical basis of the physician's practice; he is dealing with individuals, he hears of their problems and he is apt to assume that such problems are, for working purposes, to be solved by him and his patient irrespective of social laws and conditions. Nevertheless, all physicians would probably agree that the theory of medicine should never depart from its relation to science in general and hence to social science in particular but ever strive to reach a closer union with an ideal all-embracing science both

in theory and in methodology. American psychoanalysts differ from European psychoanalysts in having retained a close relationship to psychiatry and to the rest of medicine, and for this they have the commendation of other medical colleagues. But medical men in general may also suffer from isolation tendencies if not brought back occasionally to some broader concepts of the science of the human beings in the world. To the end of developing such a point of view and of showing the extent to which the affairs of the individual are determined by the affairs of the total mass of individuals, this thoughtful, carefully considered, dignified but courageous and at times startling presentation of social psychology will be for every physician not only informative but, in a sense, corrective. The author is an academic psychologist, a professor at the University of Kansas, who is carrying on research, however, with clinical subjects under medical direction, a program that will commend itself to many physicians as well as psychologists.

Medizinische Praxis: Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, Leitender Arzt der Medizinischen Klinik des Rudolf-Hess-Krankenhauses, Dresden, Prof. Dr. A. Fromme, Direktor der Chirurgischen Abteilung des Stadtkrankenhauses, Dresden-Friedrichstadt, und Prof. Dr. K. Warnekros, Direktor der Staatlichen Frauenklinik zu Dresden. Band XXI: Anleitung zur Schmerzbehandlung: Kurzes Lehrbuch der Lokalanästhesie, Allgemeinnarkose und sonstiger Anwendung der Betäubungsverfahren. Von Prof. Dr. Fritz F. Härtel, Direktor der Chirurgischen Abteilung des Oskar-Ziethen-Krankenhauses, Berlin-Lichtenberg. Unter Mitwirkung von Dr. Horst Jencio. Band XXII: Infektionskrankheiten. Von Prof. Dr. Werner Schultz, dirg. Arzt am Krankenhaus, Charlottenburg-West. Paper. Price, 10 marks; 12 marks. Pp. 106, with 17 illustrations; 191, with 11 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1936.

The stated purpose of this monograph is to acquaint the surgeon, particularly the beginner, with the methods of anesthesia available for various operative procedures that can be utilized by the surgeon himself without the aid of an assistant or professional anesthetist. The use of local and block anesthesia and the nonvolatile agents, such as the barbiturates and tribrom-ethanol, is therefore given primary emphasis. A brief outline of technic is given for the major nerve blocks, including the cranial nerves and their branches. The book gives a brief outline of German literature, although little reference is made to foreign contributions on the subject. It is difficult to see in this small monograph any substantial contribution either in manner of presentation or in content.

Applied Dietetics for Adults and Children in Health and Disease. By Sanford Blum, A.B., M.S., M.D., Head of Department of Pediatrics, San Francisco Polyclinic and Post Graduate School. Cloth. Price, \$4.75. Pp. 408. Philadelphia: F. A. Davis Company, 1936.

In 1931 the new "Fourth Revised and Enlarged" edition of "Practical Dietetics" by Sanford Blum had the same format and same number of pages as the previous edition and differed only by the insertion of a "Preface to the Fourth Edition" and "Vitamin Values of Foods." The latter was a one page table, inadequate as of the date of issuance, in which even the term "skimmed" milk appeared. The extent of the revision was practically indeterminable and the enlargement not discernible.

Now in 1936 appears a textbook by the same author entitled "Applied Dietetics." A careful comparison of the item with the fourth edition of "Practical Dietetics" previously mentioned reveals a close similarity. A careful check of the volume at hand in comparison with the previous opus yields conservatively the following information:

A gross increase of twenty-eight pages.

The infiltration of approximately twelve additional pages of continuity together with a new preface and with the retention of a facsimile introduction which appeared in the original (1923) and other editions of "Practical Dietetics."

Augmentation of some few food lists by one or two additional items, such as pastes, molasses candy, chocolate, port or sherry, and alcoholics. Infiltration of a few short, two line paragraphs of instructions. Recommendation of thyroid extract for weight reduction, with no comment as to its specific indication.

The word "indigestion," which physicians have studiously tried to eradicate from medical nomenclature, is to be found in diets for "Indigestion, Gastric"; "Indigestion, Chronic Gastric"; "Indigestion, Chronic, Gastric, Pyrosis"; "Indigestion, Chronic, Intestinal"; "Indigestion, Chronic"; "Indigestion, Reflex-Symptomatic."

The diabetic diets are based on foods analyzed in the uncooked state. These figures are acknowledged as being derived from the Atwater and Bryant Bulletin 28. (This bulletin is in reality a revised copy of the Atwater and Woods analyses, which were done prior to 1895. Tribute is given to Locke as an additional source for the caloric values of foods when Locke in the text "Food Values" [1911] acknowledges Bulletin 28 as his main reference.)

It is to be noted that at least on page 24 the book has kept pace with the times. Where the diet for "Anemia, Malnutrition" is now applied by way of illustration to the "business woman," in the earlier editions of "Practical Dietetics" she was classed as a stenographer.

This "new" textbook contains at least 50 per cent of the material, almost in identical form, which appeared in the first edition of "Practical Dietetics" in 1923. It is practically devoid of bibliography.

It appears indisputable that nutrition has made sufficient advances in the past thirteen years to warrant replacing the majority of the material, presented a decade ago, with the newer information. The reviewer feels that this textbook hints of misrepresentation to the physician and neither as an old or new textbook is it recommended.

A Health Education Workbook for Teachers, Parents, Nurses, and Social Workers. By Kathleen Wilkinson Wooten, M.A., Professor of Health, Georgia State College for Women, Milledgeville, Georgia. Paper. Price, \$1.50. Pp. 283. New York: A. S. Barnes & Company, Incorporated, 1936.

This workbook is complete, detailed and yet concise. A definite formula is followed for each subject presented. The presentation of each subject includes four divisions: (a) objective, (b) study outline, (c) activity, (d) references. Under study outline the problem is presented from every possible angle. Instructions on how to study the problems are given as well as suggestions for studying the problems from the local angle. Under activities the author gives specific assignments for the students. The references at the conclusion of each chapter are both complete and authoritative and include textbooks as well as magazines and pamphlets. The bibliography given at the beginning of the workbook is excellent. Only the most modern and authoritative authors' works are included. Each topic as it is presented can be given as much time as each individual teacher feels is necessary. The references are there to use, and each teacher can choose those most appealing. It is truly a workbook that can be recommended not only for teachers or those in training to become teachers but also for public health nurses and all others who have an interest in the teaching of health; and this should include those parents who are desirous of giving their children training along the lines of health without being too dependent on the school for such training.

Boomerang Leg and Yaws in Australian Aborigines. By Cecil J. Hackett, M.D., M.R.C.P., D.T.M. & H. Monograph 1. Boards. Price, 5s. Pp. 66, with 104 illustrations. London: Royal Society of Tropical Medicine & Hygiene, 1936.

After a review of literature relating to the problem, accounts are given of observations made in several localities showing correlations between a disease known as irkintja to the Aranda tribe with certain scars, between these scars and boomerang legs, and between boomerang legs and positive Wassermann reactions in the serum. Boomerang leg is the term applied to an anteroposterior curvature of the leg below the knee, the convexity being forward. Syphilis being absent from the natives, clinical observations point toward the identity of irkintja and yaws. Boomerang legs are present in all native communities examined in the Northern Territory and are reported as occurring in the northern parts of Western Australia and Queensland. Yaws is present in all areas where boomerang legs were encountered. Museum specimens indicate its prevalence also in earlier times, and early references show that yaws was present in all parts of Australia a century ago. The author believes that boomerang legs in Australia are similar to the saber tibias of yaws seen in other parts of the world.

Studies on morbid anatomy and radiography show that boomerang legs are produced as follows: The unbent tibias of early cases show changes identical with those previously

described for yaws in the Philippine Islands. Areas of rarefaction are seen in the anterior cortical shadows. The weakened bone then is deformed. Medullary lesions are indicated by thickened trabeculae. With resolution of the more acute stages the rarefied areas may clear up, leaving only the deformed bone and the thickened cortex. Then follows a stage in which the cortical thickening is resolving and the medulla of the shaft shows trabeculae. Finally the tibias may show no relative thickening in the cortex. Other bone lesions of yaws described in the monograph are multiple necrotic foci, periosteal nodes with or without necrosis, and generalized periosteal deposits. These lesions are found in individuals with boomerang legs living in communities where yaws is frequent and syphilis unknown. There are photographs of patients with boomerang legs, of skin lesions, and of bone lesions as shown in section and by x-ray examination.

Surgical Emergencies in Children. By Harold Clifford Edwards, M.S., F.R.C.S., Surgeon and Lecturer in Surgery to King's College Hospital, London. Cloth. Price, \$4.50. Pp. 274, with 99 illustrations. Baltimore: William Wood & Company, 1936.

This small book is a pithy exposition of the thoughtful conclusions of a careful and experienced worker in the surgery of childhood. It is of great interest to the practicing surgeon and a valuable guide to the pediatrician and general practitioner, but its small size precludes its use in the actual instruction in surgery. The volume is a very wise consideration of this subject. Particularly good is the section on intussusception, although it is to be regretted that mention of A. H. Montgomery's short circuiting operation in irreducible intussusception is omitted. The Orr treatment of osteomyelitis is praised. Although the tannic acid treatment of burns is adequately described, no mention is made of the Aldrich gentian violet method. The wisdom of splinting in extension to prevent burn contractures is questionable, and the author's adherence to the Sayre dressing for fractures of the clavicle might be objected to. The illustrations, while instructive, are of only second grade. The chapter on general anesthesia, by Dr. Vernon Hall, is particularly valuable. The subject matter includes pyogenic infections, fractures, injuries to muscles and tendons, acute infections of bones and joints, head injuries and inflammatory conditions of the abdomen, intestinal obstructions, congenital malformations of the intestinal tract including Meckel's diverticulum, diseases of the thoracic cavity and the urinary and genital tracts, and the ear, nose and throat, the latter by G. H. Gateman. On the whole the book can be recommended.

The Legal Aspects of Milk Control. By James A. Tobey, Dr.P.H., Fellow, American Public Health Association. Cloth. Price, \$3. Pp. 102. Chicago: International Association of Milk Dealers, 1936.

Since 1924 the author, as a public health worker and as a member of the bar, has been gathering data on the legal aspects of milk control and has made periodic reports on this subject to various interested groups. This book is an outgrowth of these studies. It contains references to, quotations from and comments on, the court decisions involving problems that have arisen in this particular field, decisions relating to pasteurization of milk, to standards for milk and dairy products, to licenses and permits, to inspection, sanitation and seizure of milk, to tuberculin testing, and to other aspects of the problem. In collating these decisions and making them readily and understandably available, as he has done in this small volume, the author has made a definite contribution to an important sector of public health work.

Selo i tuberkuloza Izdanje škole Narodnog Zdravlja u Zagrebu. [By] Miron Malojčić. [Tuberculosis in the Villages of the Sava-county (Jugoslavia). Issued by the National School of Health of Zagreb. With an English summary]. Paper. Pp. 65, with 22 illustrations. Zagreb: Stamparija "GAJ," (Lj. Filipančić), 1936.

This monograph presents the results of investigation of the prevalence of tuberculosis in the villages of Sava County in Yugoslavia. The incidence of tuberculosis amounted to from 1.8 to 6.7 per cent of the inhabitants. The greater the density and the lower the degree of hygienic culture, the larger the number of diseased. The authors express the conviction that tuberculosis in the villages is on the increase and that this increase will continue if the existing social conditions are not immediately improved.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of License for Advertisements Tending to Deceive the Public.—The board of medical examiners of California revoked the plaintiff's license to practice medicine, finding him guilty of distributing, in contravention of the medical practice act, an advertisement having a tendency to deceive the public or to impose on credulous or ignorant persons. Fuller, the plaintiff, by certiorari proceedings, contested in the superior court the action of the board. The court modified the ruling of the board by striking out the portion revoking the license and inserting in its place a reprimand to Fuller. As thus modified, the board's ruling was affirmed. Both Fuller and the board appealed to the district court of appeal, second district, division 1, California.

The board of examiners contended that the superior court had no jurisdiction to substitute a new and different penalty in the place of that pronounced by the board. With this contention, the district court of appeal agreed. Under the provisions of the California code of civil procedure, the court said, the review on certiorari cannot be extended further than to determine whether the inferior tribunal has regularly pursued its authority. The reviewing court has no authority to go beyond the question of jurisdiction, because on every other question the action of the inferior tribunal is final and conclusive. The power of the reviewing tribunal to modify, like its power to annul, can be exercised to change an action of an inferior board only when the latter by such action has exceeded its jurisdiction. In the present case, the court said, the board of medical examiners acted within its jurisdiction in imposing a judgment authorized by the medical practice act. The board alone has the power to modify or revoke it.

In his appeal, Fuller contended that there was no substantial evidence in the record to support the board's findings. The gist of the accusation against Fuller was that he published a pamphlet or booklet in which he claimed, among other things, to possess a cure for hernia without resort to the risks of major surgery. In this booklet, he asserted it to be an indisputable fact that radical surgery in the treatment of hernia results in a comparatively large proportion of actual recurrences—a return to the original condition of hernia, or to a predicament far worse than before the operation. It was further asserted that resort to surgery necessitated an open wound which might, even though under sterile conditions, become infected, whereas the injection method advocated by Fuller did not admit of any exposure to infection. The advertisement then went on to claim that Fuller injected fluid in such a manner that it did not reach the abdominal cavity and proclaimed his ability safely and economically to cure hernia without a radical surgical operation.

Without a doubt, the court said, a state has the right to require that the possessor of a license to practice medicine shall be a person of good moral character, reliable, trustworthy, and not given to deception of the public or to the practice of imposing on credulous or ignorant persons. On the other hand, the right of a licensed physician to practice is not a mere shadowy privilege, to be revoked regardless of whether the holder thereof has violated the laws of the state. It is a valuable right, to be protected at least by such safeguards as the legislature has drawn around it. The provision in the medical practice act authorizing the revocation of a license is in the nature of a penal provision and therefore it is to be construed with a degree of strictness commensurate with the severity of the penalty it imposes. Under the weight of authority, however, the reviewing court has no right on certiorari to judge the intrinsic value of the evidence, nor weigh it. The writ cannot be used to determine whether or not the evidence was sufficient, in the opinion of the reviewing court, to support the particular decision complained of, provided the inferior tribunal or board had jurisdiction and the record discloses substantial evidence to support the decision. Although, continued the district court of appeal, we might be in entire accord with the views of the court below that the penalty imposed in the present case, under all the facts

and circumstances, was out of all proportion to the element of social justice in the premises and the culpability of the petitioner, if any, under the medical practice act, nevertheless the action of the board is final and conclusive on every question except that of jurisdiction. While it was true that there was a conflict in the evidence presented to the board at the hearing, yet where the board or tribunal whose decision is sought to be reviewed has acted on a conflict of the evidence, and where it has not acted on an entire absence of any competent evidence, it has not exceeded its jurisdiction, and a reviewing court cannot, under such circumstances, interfere with or annul the decision rendered by the inferior tribunal. For these reasons, the district court of appeal modified the judgment of the superior court by striking therefrom the penalty sought to be substituted for the penalty imposed by the board of medical examiners, and, as so modified, affirmed the judgment.—*Fuller v. Board of Medical Examiners (Calif.)*, 59 P. (2d) 171.

Malpractice: Paralysis Attributed to Osteopathic Treatment.—The plaintiff sued the defendant, an osteopath, for injuries allegedly due to the latter's malpractice. The trial court sustained the defendant's motion for a nonsuit and dismissed the case. The plaintiff thereupon appealed to the Supreme Court of Colorado.

The plaintiff, a strong, able-bodied man, had a stiff neck caused by painting the ceiling of the kitchen in his house. He applied to the defendant osteopath for relief. The treatment given and its immediate results are thus described in the record: "At defendant's suggestion, he [the patient] seated himself in a chair. Defendant got behind plaintiff, put both hands on plaintiff's neck, one on each side, gave the neck a side motion once or twice, and then gave the neck a 'terrific' jerk. Instantly the plaintiff suffered a 'terrible' pain as though something in his head had given way, and as soon as the pain came the plaintiff started to vomit and became 'terribly' sick. His heart started fluttering, and after he got through vomiting defendant laid him on a table. Plaintiff completely lost his sense of balance, everything started to revolve, and he still had a 'terrible' pain in his head. His brother then came into the room, and Dr. Patton [the osteopath] said, 'I guess I was a little rough.' It seemed to plaintiff that the right side of his body had become entirely paralyzed. He could move his left arm and left leg, but had no control over the right side of his body. Defendant tried to give plaintiff a powder, but he could not swallow. He remained in defendant's office about two hours. Defendant and plaintiff's brother took plaintiff out of the office down the hall to the elevator, put him in the elevator and carried him to the brother's car, which was in front of the building. When they arrived at the brother's house, plaintiff was taken out of the car and into the house and laid in the front bedroom. Plaintiff's right side was totally paralyzed and he could not swallow. In the evening they fed plaintiff some liquid through a tube in the nose. Plaintiff's bowels and bladder absolutely stopped any movement, compelling them to catheterize him and to give him an enema."

On the second day after the treatment, the plaintiff's wife asked the defendant to summon a "medical doctor." The defendant, however, called another osteopath, who "gingerly" manipulated the plaintiff's head and left without giving the plaintiff or his attendants any information whatsoever. Subsequently, the plaintiff was removed to a hospital and there attended by a doctor of medicine. At the time of the trial, nearly three years after the osteopathic treatment, the plaintiff had no control over the muscles in his right arm, could not write or use his right arm to any advantage, the left side of his body was immune to heat, cold and pain, the sensation of touch was gone, and his eyes continued to have a "rolling motion" all the time. One of the physicians who testified at the trial said that, in his opinion, the plaintiff would never recover and that he rated him as totally and permanently disabled. One of the physicians who examined the plaintiff testified that the cause of the plaintiff's condition was a lesion of the medulla oblongata just above the junction of the brain stem and the spinal cord. This lesion, in the opinion of the witness, was due to injury, to external violence.

The trial court erred, said the Supreme Court, in holding that, because no osteopath testified concerning the method of

osteopathic treatment in similar cases, there was no prima facie showing of negligence. As applied to many cases, the rule announced by the trial court is sound, but it is not of universal application. In certain types of malpractice cases, negligence may be proved by nonexpert witnesses. Where, as in the present case, recovery of damages is sought not for negligence in making an incorrect diagnosis or in adopting the wrong standard of treatment but for the performance of an operation in a negligent manner, any pertinent evidence having a fair tendency to establish a charge of negligence is sufficient to take the case to the jury. In *Hinthorn v. Garrison*, 108 Kan. 510, 196 P. 439, a chiropractor thrust his thumb between the shoulder blades with such force and violence as to dislocate the patient's ribs. The court in that case said:

It is argued that plaintiff must prove that the defendant did not exercise ordinary skill as a chiropractor. This is correct, but the quoted part of the evidence, taken by itself, without any explanation, tends to show that a chiropractor who treated a man entirely free from any trouble with his spine, who thereafter suffered as the testimony shows the plaintiff did, must have been unskilful or careless.

So, in the present case, the plaintiff made a prima facie showing of negligence on the part of the defendant, and of a causal connection between that negligence and the plaintiff's injuries. According to the testimony, the rough treatment administered by the defendant was followed instantaneously by the plaintiff's disability. The judgment of the trial court, therefore, dismissing the plaintiff's case was reversed and the cause remanded for a new trial.—*Farrah v. Patton (Colo.)*, 59 P. (2d) 76.

Malpractice: Mistake in Diagnosis of Fracture of Hip.

—The plaintiff fell and injured his hip. The defendant, a physician, diagnosed the injury as torn ligaments and strained muscles, and prescribed rest and quiet in bed. He also directed the plaintiff's wife to rub and massage the affected area. The plaintiff remained in bed for a month or more, suffering considerable pain, but did not request that the defendant call again. During this period, however, the plaintiff's wife visited the defendant's office several times and was told that the plaintiff should continue to stay in bed, letting nature take its course in effecting recovery. Subsequently, the plaintiff obtained the services of a specialist who, with the aid of a roentgenogram, discovered that the plaintiff had an impacted fracture of the hip. An operation was performed which resulted in the plaintiff's recovery to an extent that he was able to get around with the assistance of a cane. The present suit was then filed against the defendant. The trial court sustained a demurrer to the evidence, interposed by the defendant, and the plaintiff appealed to the Supreme Court of Oklahoma.

The plaintiff's evidence, said the court, falls far short of establishing his right to recover for unskilful or negligent treatment by the defendant. The plaintiff's own expert witness, the specialist who performed the operation, testified that there are probably twenty-five different methods of treatment for a fractured hip, but that the usual method, and one quite commonly resorted to, is merely to let the patient remain in bed, permitting the fragments of the bone to knit together by nature's own healing process. This is exactly what the defendant prescribed, observed the court, though admittedly under the wrong diagnosis. The negligence on which the plaintiff's case rested consisted of the failure properly to diagnose the case, including the failure to take a roentgenogram of the injury. A mistake in diagnosis, said the court, does not constitute actionable negligence unless it is shown that the patient was injured in some manner by such erroneous diagnosis. There was no such evidence in this case. The plaintiff not only failed to offer any evidence tending to prove that any of his suffering was attributable to any act or omission of the defendant but made it affirmatively appear that the treatment rendered was in the exercise of due care according to medical practice and experience. Custom and usage are not necessarily determinative as to whether proper care was used, but they help considerably in determining that question. The burden of proof was on the plaintiff to establish the alleged negligence and the resultant injury. Since he failed to do so, it was the duty of the trial court to sustain the demurrer. The judgment of the trial court for the defendant was consequently affirmed.—*McBride v. Roy (Okla.)*, 58 P. (2d) 886.

Society Proceedings

COMING MEETINGS

- Alabama, Medical Association of the State of, Birmingham, April 20-22. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Pediatric Society, Hot Springs, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Hospital, Pittsburgh, Pa., Secretary.
- American Society for Experimental Pathology, Atlantic City, N. J., May 3. Dr. J. M. Hayman, 1000 Euclid Ave., Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 58th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- Arkansas Medical Society, Little Rock, April 12-14. Dr. W. R. Brooksher, 602 Garrison Ave., Ft. Smith, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 334 North Grand Blvd., St. Louis, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- Nebraska State Medical Association, Omaha, May 10-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
- Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.
Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
South Carolina Medical Association, Columbia, April 13-15. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
Tennessee State Medical Association, Knoxville, April 13-15. Dr. H. H. Shoulders, 706 Church St., Nashville, Secretary.
Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
Western Branch of American Public Health Association, Phoenix, Ariz., April 13-15. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.
West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

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Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

37: 145-292 (Feb.) 1937

- Comparison of Oral Cholecystographic Findings and Proved Evidences of Gallbladder Disease. F. J. Hodges and I. Lampe, Ann Arbor, Mich.—p. 145.
Postoperative Visualization of Biliary Tract. C. E. Hufford, Toledo, Ohio.—p. 154.
Roentgen Kymography Considered in Relation to Heart Output, and New Heart Index. S. E. Johnson, Louisville, Ky.—p. 167.
Roentgenologic Study of Shifting of Blood in Circulatory System of Experimental Animals Under Influence of Various Stimuli. C. Gian-turco and F. R. Steggeda, Urbana, Ill.—p. 175.
*Contralateral Bronchial Infection in Pulmonary Tuberculosis: Study of 242 Cases. C. Wu and B. H. Y. T'ang, Peiping, China.—p. 180.
Regional Ileitis: Review of Fifty Cases. J. Jellen, Los Angeles.—p. 190.
Traumatic Separation of Lower Epiphysis of Radius. C. L. Gillies, Iowa City.—p. 202.
Roentgen Diagnosis of Lipomas. F. E. Templeton, Chicago.—p. 210.
Obstructive Emphysema and Atelectasis in Acute Respiratory Disease of Infants. W. Snow and C. S. B. Cassasa, New York.—p. 217.
Roentgenologic Evidence of Rapidity of Growth in Gastric Carcinoma: Report of Case. M. Golob, New York.—p. 221.
Evaluation of Irradiation in Treatment of Uterine Fibroids. C. F. Burnam, Baltimore.—p. 234.
Protective Factors in Preparation and Handling of Gold Implants and Other Radon Applicators. W. Stenstrom and C. E. Nurnberger, Minneapolis.—p. 247.

Contralateral Bronchial Infection in Pulmonary Tuberculosis.—In studying certain cases of pulmonary tuberculosis, Wu and T'ang noted that tuberculosis of one lung was not infrequently complicated by what appeared to be a more recent infection of the opposite lung. Cole and his associates in 1930 applied the term "cross-infection" to this phenomenon. The new infection would seem to be autogenous and is due apparently to the aspiration of infectious exudate and detritus from a bronchus of the earlier affected lung to that on the opposite side. The present report covers the study of 242 selected cases of pulmonary tuberculosis and several experiments on nontuberculous subjects and is intended to show that there exists in either lung a site of predilection for what the authors prefer to call "contralateral bronchial infection." It is possible that cross-infection may occur at any site in the contralateral lung, but their observations have enabled them to demonstrate that either lung has an area of predilection in which cross-infection may be expected to occur. For the right lung this area corresponds to the third of the lung lying midway between the apex and the upper margin of the middle lobe. The site of predilection for the left lung comprises one fifth of the lung field midway between the apex and the base, and in roentgenograms corresponds to the third anterior interspace. At some spot within these areas early cross-infection should be looked for, and it is frequently found that the whole of the selected

areas is diseased. Infection may pass from the left lung to the right as well as in the opposite direction. In almost 90 per cent of instances a cavity existed in the primarily affected lung. In more than 90 per cent of the cases in which it occurred, contralateral infection was found in the second interspace area of the right side and the third interspace area on the left side—the areas of predilection. Physical signs were recorded in the secondarily infected lung in less than 50 per cent of the cases. Secondary bronchial cross-infection in pulmonary tuberculosis is usually peripherally situated and involves the parenchyma of the lungs. The infectious material must therefore be aspirated into the air vesicles proper. Continued lying on the secondarily diseased side during sleep is apparently the main factor causing the drainage into the parenchyma of exudate which is present in the bronchi. It is probable that the passage of loose foreign matter from one lung to the other is largely controlled by gravity. The signs of early contralateral infection must be sought in the axillary area of the opposite lung, particularly in the absence of apical disease on the same side.

Annals of Surgery, Philadelphia

105: 161-320 (Feb.) 1937

- Topography of Extrahepatic Biliary Passages, with Reference to Dangers of Surgical Technic. A. Lurje, Moscow, U. S. S. R.—p. 161.
Tuberculosis of the Breast. J. L. Keeley, Madison, Wis.—p. 169.
Mediastinal Tumor Caused by Hodgkin's Disease. G. P. Muller, Philadelphia.—p. 177.
Jejunal Intussusception. E. B. Freilich and G. C. Coe, Chicago.—p. 183.
*Congenital Atresia of the Intestine. J. D. Martin Jr. and D. C. Elkin, Atlanta, Ga.—p. 192.
Rectal Prolapse: Experience with Elastic Ligature. E. L. Eliason and W. H. Erb, Philadelphia.—p. 199.
Tumors of Uterus, with Especial Reference to Fibroids. J. F. Erdmann, New York.—p. 203.
Primary Carcinoma of Male Urethra. A. E. Goldstein and B. S. Abeshouse, Baltimore.—p. 213.
Severed Tendons and Nerves of Hand and Forearm. M. C. O'Shea, New York.—p. 228.
*Painful Shoulder Arising from Lesions of Subacromial Bursa and Supraspinatus Tendon. L. K. Ferguson, Philadelphia.—p. 243.
Gas Gangrene: Review of Thirty-Two Cases, with Especial Reference to Use of Serum, Both Prophylactic and Therapeutic. M. T. Bates, Iowa City.—p. 257.
Correlation of Roentgen-Ray Dosage and Necropsy Findings in Case of Retroperitoneal and Mediastinal Metastases from Embryonal Carcinoma of Testis: Death from Gangrene of Colon, Results of Irradiation Therapy. A. Brunschwig and J. Fox, Chicago.—p. 265.
Tissue Heating Accompanying Electrosurgery: Experimental Investigation. R. D. Huntton, Iowa City.—p. 270.

Congenital Atresia of Intestine.—Martin and Elkin state that, although congenital intestinal atresia is thought to be encountered infrequently, it occurs often enough to reemphasize its importance. If congenital atresia is diagnosed early and adequate surgical treatment instituted, it is possible to avoid a fatal issue. In spite of the high mortality rate, these infants should all be given the benefit of operative intervention before dehydration, alkalosis and demineralization have occurred. The use of fluids, preferably in the form of Hartman's solution, and blood transfusions before and after operation aid in preventing shock and dehydration. The procedure carried out must vary with each individual case. Adequate exposure is necessary for complete exploration of the abdominal cavity. In the two cases reported, palliative enterostomy was the procedure of choice. In both cases, signs of complete obstruction were manifested. In the successful case this procedure was later followed by a resection of the portion of the intestine with lateral anastomosis. It became necessary to do this because chronic intussusception developed in the stoma of the ileostomy. When vomiting in the new-born becomes persistent, congenital gastro-intestinal lesions should be suspected and ruled out if the only opportunity for recovery is to be afforded the infant.

Painful Shoulder.—Ferguson presents his experiences in the treatment of the lesions of the soft tissue involving the subacromial or subdeltoid bursa and the supraspinatus tendon in 200 patients. The lesions discussed are acute traumatic bursitis, acute bursitis with calcification, subacute bursitis with calcification, chronic bursitis and tendinitis or obliterative bursitis. In spite of definite criteria on which the diagnosis of painful shoulder is made, a differential diagnosis is often difficult, as many of these lesions may be combined or may follow one another. In other instances the diagnosis may be confused by other injuries in the shoulder region, such as dislocation

of the shoulder or fracture of the greater tuberosity or of the upper humerus. In spite of these facts, however, an adequate history and a careful physical examination will, as a rule, give the examiner a fairly clear mental picture of the pathologic process with which he is dealing. The success of treatment depends in large part on an exact knowledge of the lesion. In cases in which foci of infection were found and eradicated no special benefit seemed to follow, and it has never been possible to trace etiologic relationship definitely between the painful lesions described and toxic absorption from foci of infection or from the colon. The constancy with which trauma appears in the history of patients with painful lesions of the shoulder points to the relative importance of injury as the etiologic factor in these cases.

Archives of Ophthalmology, Chicago

17: 207-398 (Feb.) 1937

- Subconjunctival Section of Ductules of Lacrimal Gland as Cure for Epiphora. P. C. Jameson, Brooklyn.—p. 207.
Cyclic Paralysis of Oculomotor Nerve. A. M. Hicks and G. N. Hosford, San Francisco.—p. 213.
Congenital Anomalies of Anterior Segment of Eye. A. Hagedoorn, Amsterdam, Netherlands.—p. 223.
Malaria and the Eye: Involvement of Organ of Sight in "Malaria Larvata et Ignorata" and Significance of Melanoflucculation Reaction for Etiologic Diagnosis. A. E. Goldfeder and V. D. Moldavskaja, Kharkoff, U. S. S. R.; edited by I. Franklin, Milwaukee.—p. 228.
Cause of Calcification of Crystalline Lens, with Advance in Age and in Cataract. W. E. Burge, G. C. Wickwire and H. M. Schamp, Urbana, Ill.—p. 234.
Short Studies on History of Ophthalmology: III. Hughlings Jackson, the Neurologic Ophthalmologist, with Summary of His Works. B. Chance, Philadelphia.—p. 241.
Oculus Fascinus (Fascination, Evil Eye). B. L. Gordon, Atlantic City, N. J.—p. 290.
*Test for Aniseikonia, by Use of Central Fixation and Fusion. D. G. Allen, Cleveland.—p. 320.
Effect of Position of Correcting Lens on Size of Retinal Image. H. Eggers, New York.—p. 328.
Neurofibroma of Orbit: Report of Case. M. P. Motto, Cleveland.—p. 340.

Test for Aniseikonia.—Allen evolved a method of central fixation and fusion which is simple enough to use as a routine procedure in refraction and by which aniseikonia of as low a degree as 0.5 per cent is detected in some cases and differences of 1 per cent or greater are detected consistently. Most of the work was done by testing known differences in size, i. e., those created by placing concave lenses of from 0.25 to 1 diopter in power before one eye, the percentages of difference thus caused being approximately from 0.5 to 2 per cent. The apparatus used was a stereoscope fitted with rotary prisms, targets and size lenses made according to the plan evolved in the Dartmouth Medical School. The targets consist of short lines tangent to circles 6 cm. in diameter at eight points. The circles are erased and the cross lines added to aid fusion. The designs are in black and are identical, with the exception that the tangent lines in the left target are red. The correction of aniseikonia will be found most beneficial in helping the middle class of those with anisometropia, i. e., those between (1) comfortable patients with small refractive differences and (2) patients with large refractive differences who cannot possibly wear the true correction for eyes with unequal retinal images.

Archives of Pathology, Chicago

23: 159-298 (Feb.) 1937

- Sternal Marrow in Pernicious Anemia: Correlation of Observations at Biopsy with Blood Picture and Effects of Specific Treatment in Megaloblastic ("Liver-Deficient") Hyperplasia. W. Dameshek and Eleanor H. Valentine, Boston.—p. 159.
*Cerebral Lesions in Hypoglycemia. A. B. Baker and N. H. Lufkin, Minneapolis.—p. 190.
Blood of Female Mice (Breeders) of Cancer-Susceptible (A) and Cancer-Resistant (CBA) Strains. L. C. Strong and L. D. Francis, New Haven, Conn.—p. 202.
Lesions of Nervous System of Rat in Vitamin B Deficiency. C. Davison and L. Stone, New York.—p. 207.
Specific Histology of Granuloma Inguinale. E. R. Pund and R. B. Greenblatt, Augusta, Ga.—p. 224.
*Role of Anaerobic Streptococci in Human Infections. J. R. McDonald, J. C. Henthorne and L. Thompson, Rochester, Minn.—p. 230.

Cerebral Lesions in Hypoglycemia.—Baker and Lufkin studied histologically the organic lesions of the central nervous system caused by a hypoglycemia in three patients. Numerous new and old hemorrhages were found scattered irregularly throughout the three brains. These seemed most numerous in the brains of the patients who had the most severe

convulsive seizures. Extensive and widespread alterations of the ganglion cells, both the cytoplasm and the nucleus being involved, were observed, but these were due entirely to post-mortem alterations. The brains of rabbits in which repeated hypoglycemic convulsions were produced showed no cell alteration of pathologic significance.

Role of Anaerobic Streptococci in Human Infections.

—In the twenty-three cases from which McDonald and his associates recovered anaerobic streptococci at necropsy some part of the intestinal tract was involved nine times, the lung primarily seven times and the meninges four times; in three cases the lesions occurred in various tissues. Abscess of the lung was the predominant pulmonary lesion in four cases. Gangrenous appendicitis with rupture accounted for five of the intestinal lesions. There were three cases in which carcinoma of the large intestine had perforated and produced an abscess. The face in the four cases in which anaerobic streptococci were isolated from the meninges represented chronic infections in the nasopharynx, frontal sinus and middle ear. In the fourth case an infected wound in the region of the tenth thoracic vertebra had resulted in the infection. The duration of the major symptoms varied from four days up to one and a half years. In only four cases did the terminal illness last less than one week. This chronicity seems to be attributable to the low virulence of anaerobic streptococci. Microscopically, most of the lesions presented the appearance of a nonspecific chronic granuloma. Anaerobic streptococci were recovered in pure culture in eleven of the twenty-three cases. Often they were isolated both from the blood and from the lesions. They were mixed with aerobes in seven cases and with anaerobes in seven cases. In two cases the anaerobic streptococci were mixed with both aerobes and anaerobes. From three pulmonary abscesses anaerobic streptococci were recovered in association with Vincent's organisms. Bacilli of the genus *Bacteroides* were isolated with anaerobic streptococci in two cases. Of the eleven strains studied biologically, only three produced similar reactions on sugar. These three strains were isolated from cerebrospinal meningitis. All strains proved practically non-virulent for laboratory animals.

Archives of Surgery, Chicago

34: 377-564 (March) 1937

- Decline in Strength of Catgut After Exposure to Living Tissues. J. E. Rhoads, H. F. Hottenstein and I. F. Hudson, Philadelphia.—p. 377.
*Influenzal Meningitis: Report of Case with Recovery. I. Cohn, New Orleans.—p. 398.
Intramural Formation of Gallstones. S. W. Moore, New York.—p. 410.
Drainage of Cerebrospinal Fluid in Treatment of Acute Head Injuries. D. H. Werden, San Diego, Calif.—p. 424.
Biomechanical Studies of Fibrous Tissues Applied to Fascial Surgery. C. M. Gratz, New York.—p. 461.
*Significance of Obstructive Factor in the Genesis of Acute Appendicitis: Experimental Study. O. H. Wangenstein and W. F. Bowers, Minneapolis.—p. 496.
The Management of Compound Fractures. H. H. Ritter, New York.—p. 527.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson, J. T. Priestley, Rochester, Minn., and V. J. O'Connor, Chicago.—p. 535.

Influenzal Meningitis.—Cohn's patient had a compound depressed fracture of the skull with brain laceration and a fracture of the clavicle but recovered. This patient acquired acute influenzal meningitis five weeks after the accident. A persistent increased intracranial pressure, varying from 90 to 40 mm., was never associated with changes of the eyegrounds. After twenty-nine spinal taps and three transfusions a complete recovery without evidence of any residual manifestations ensued. Up to the time of writing the efforts to prove the efficacy of so-called immune human serum have not been satisfactory. It seems generally accepted that influenzal meningitis is a primary disease not associated with a previous infection of the respiratory tract in the majority of instances. The organism causing influenzal meningitis is immunologically type specific. Until an effective antiserum is available, repeated spinal taps, transfusions, dehydration and sedatives remain the most valuable methods of attempting to aid influenzal meningitis. The mortality remains about 96 per cent.

Significance of Obstructive Factor in Acute Appendicitis.—Wangenstein and Bowers try to evaluate the significance of the obstructive factor in the genesis of appendicitis

by experiments on animals and by careful observation of the frequency with which obstructive phenomena are noted in the spontaneous occurrence of the disease in man. In the dog complete obstruction of the infected cecal appendage was always followed by inflammation; obstruction of the washed appendage was usually well tolerated. Infection without obstruction did not produce inflammation. The essential inciting factor would appear to be a disturbance in the pressure-distention relationship of the appendix. Sustained intraluminal pressures of from 8 to 15 cm. maintained for from six to eighteen hours invariably were followed by changes in the wall of the cecal appendage. There appears to be a sphincter-like mechanism at the base of the appendix which makes of it a potential closed loop, with all its attendant inherent dangers. This mechanism accounts for the formation of appendical stones or concretions. These are laminated and are formed largely in the appendix, a sign of appendical stasis. Appendical concretions are found as acutely obstructing agents in most instances of perforated appendixes—the group in which mortality occurs. Appreciation of the significance of appendicular colic should lead to a better understanding of the nature of appendicitis. Appendicular obstruction brooks no delay and demands immediate appendectomy.

Arkansas Medical Society Journal, Fort Smith

33: 169-186 (March) 1937

Compulsory Health Insurance. G. B. Fletcher, Hot Springs National Park.—p. 169.
Sex and the Endocrines. I. G. Jones, DeQueen.—p. 174.

California and Western Medicine, San Francisco

46: 73-144 (Feb.) 1937

Pulmonary Embolism. E. R. Ware and L. T. Bullock, Los Angeles.—p. 79.
Psychosis in the Mentally Defective. F. O. Butler, Eldridge.—p. 84.
Transurethral Resection: Does It Require as Extensive a Preoperative Preparation as Prostatectomy? H. C. Bumpus Jr. and B. D. Massey, Pasadena.—p. 89.
Pulmonary Cavity: Optimism Surrounding Its Intelligent Treatment. F. M. Pottenger, Monrovia.—p. 92.
Expert Medical Testimony in California Courts. H. D. Barnard and G. E. Tucker, Los Angeles.—p. 95.
The Thymus in Health and Disease. P. Michael, Oakland.—p. 101.
Missed Abortion. J. M. Slemmons, Los Angeles.—p. 104.

Canadian Public Health Journal, Toronto

28: 53-104 (Feb.) 1937

Prevention and Treatment of Scarlet Fever. Frieda H. Fraser, Toronto.—p. 53.
Physical Examination of Nurses Before and During Employment. M. R. Bow, Edmonton, Alta.—p. 63.
Observations on Training of Public Health Personnel. R. D. Defries, Toronto.—p. 67.
Need for Uniformity in Tuberculosis Records and Statistics. G. J. Wherrett, Ottawa, Ont.—p. 75.
*Water-Borne Outbreak of Paratyphoid A Fever. J. P. Franklin, Cumberland, Md., and C. H. Halliday, Baltimore.—p. 82.
Adrenal Glands: Review of Laboratory and Clinical Studies. R. A. Cleghorn, Toronto.—p. 88.

Water-Borne Outbreak of Paratyphoid A.—Franklin and Halliday report the occurrence of thirty-seven cases of paratyphoid A among a population of 133 in the fall of 1932 at Vindex, Garrett County, Md., a coal mining settlement. In addition to the thirty-seven cases among the population there were four cases among nonresidents who contracted the disease while on a visit to the community. Identification of the causative organism was made by blood cultures, agglutination tests of serums and the isolation of *Bacillus paratyphosus* A from stool and urine specimens. The source of infection was traced to the local water supply contaminated by drainage from an outdoor privy into which had been thrown the discharges of a patient who, owing to an illness that was undiagnosed, had returned to her home from a visit to an adjoining state. Investigation revealed that eleven cases of dysentery also had occurred among the inhabitants and subsequent investigation showed that a total of twenty-seven cases of dysentery had occurred in twenty of the homes immediately preceding the outbreak of paratyphoid. It is interesting to note that an outbreak of diarrhea preceded an epidemic of paratyphoid A recorded by Berry in 1916 among the troops encamped on the Mexican border. Of 1,000 men, approximately one third contracted the infection.

Colorado Medicine, Denver

34: 73-152 (Feb.) 1937

Surgery of Intrathoracic Goiter. G. B. Kent and K. C. Sawyer, Denver.—p. 86.
Factors in Morbidity and Mortality of "Suburban" Appendicitis: Report of 100 Consecutive Cases. N. L. Beebe, Fort Collins.—p. 92.
Coffer-Dam Pack and Duodenal Siphonage in Acute Appendicitis. H. Freeland, Denver.—p. 96.
Pylonephritis, with Especial Reference to Treatment. H. H. Wear, Denver.—p. 121.

Delaware State Medical Journal, Wilmington

9: 19-34 (Feb.) 1937

Diphtheria Immunization of Children. A. C. Jost, Dover.—p. 19.
Diabetes in Children. E. Podolsky, Brooklyn.—p. 24.
Some of the New Advances in Radiotherapy. I. Burns, Wilmington.—p. 25.
*Protamine Zinc Insulin: Preliminary Observations on Its Use in Ambulatory Cases. J. M. Barsky and C. R. Levy, Wilmington.—p. 27.

Protamine Zinc Insulin.—Barsky and Levy encountered some difficulties in changing ambulatory patients from the old type of insulin to protamine zinc insulin. Undoubtedly this new form of insulin presents many advantages. The greater flexibility in the time for the administration of this insulin is of great value, but it also has increased the difficulty in ascertaining the proper dosage, since the time of administration must also be determined. In only two cases were untoward effects seen. In one the patient was awakened in the early hours of the morning by severe abdominal pains. This occurred regardless of the knowledge that the protamine insulin was being administered. Another patient was awakened with severe pain in the arms. A change in the time of administration remedied this. In the first case, however, the use of the new insulin product had to be discontinued.

Illinois Medical Journal, Chicago

71: 93-184 (Feb.) 1937

Reducing Infant Mortality. H. C. Niblack, Chicago.—p. 109.
Classification of Poisoning, with Methods of Diagnosis and Treatment of Some of the More Common Poisons. W. D. McNally, Chicago.—p. 115.
Fundamentals of Electrocardiography and the Normal Electrocardiogram. B. S. Kleinman, Chicago.—p. 127.
A Statement to Physicians on Venereal Disease Situation. F. J. Jirka, Springfield.—p. 130.
*Effectiveness of Oral Administration of Ephedrine in the Common Cold. G. H. Gowen and A. J. Nedzel, Chicago.—p. 132.
Physical Therapy as Applied to Eye, Ear, Nose and Throat. J. S. Coulter, Chicago.—p. 136.
Advantages and Disadvantages of Aspirin and Aspirin with Calcium Salts in Treatment of Arthritis. A. M. Serby and S. Sideman, Chicago.—p. 140.
Etiologic, Diagnostic and Medicolegal Problems of Occupational Diseases. C. O. Sappington, Chicago.—p. 143.
Accidents and Errors Encountered in Incision for Extraction of Senile Cataract. W. W. Gailey, Bloomington.—p. 150.
Chronic Prostatitis: Critical Review of 1,000 Cases. H. L. Kretschmer, H. A. Berkey, N. J. Heckel and E. A. Ockuly, Chicago.—p. 152.
Infectious Mononucleosis. H. J. Isaacs, Chicago.—p. 161.
Women as Slaves to Industry. J. R. Harger, Chicago.—p. 165.
Problems Encountered in Interpretation of Mechanical and Laboratory Aids to Diagnosis. G. Parker, Peoria.—p. 169.
Jelly Belly (Pseudomyxoma Peritonei) and Its Ultimate Development: Report of Three Cases. W. W. Voigt, Chicago.—p. 172.
Treatment of Chronic Suppurative Otitis Media with Iodine Powder. C. H. Christoph, Chicago.—p. 176.
Appendicitis Is an Emergency. G. L. McWhorter, Chicago.—p. 179.

Effectiveness of Oral Administration of Ephedrine in the Common Cold.—Since ephedrine has a tendency to cause psychic excitation, especially insomnia, it seemed rational to Gowen and Nedzel to combine it with a sedative such as isoamylethylbarbituric acid in the treatment of colds. Of the 566 cases studied during three years, 502 were treated in this manner and sixty-four were employed for controls (placebo treatment). The observations in the treated cases were concerned with the response to varying combinations of ephedrine and amytal. The dosage of choice proved to be one-eighth grain (0.008 Gm.) of ephedrine sulfate and three-eighths grain (0.024 Gm.) of amytal. The optimal dosage of this drug combination is considered to be six capsules or tablets daily with an interval of two hours between doses. Medication was stopped as soon as definite improvement took place, for which the number of doses varied from a minimum of one tablet or capsule to a maximum of twelve, with an average intake per person of from four to four and four tenths. The most satisfactory results were obtained

in those who reported for treatment within twenty-four hours after onset. There was evidence of improvement in 83 per cent of the treated cases, as compared to 26 per cent in the controls. Patients having fever, sore throat, cough, laryngitis and purulent nasal discharge did not respond well, nor did those who applied for treatment later than three days after the onset. The course of infection was shortened and improvement was noted earlier as compared to the various types of remedy employed by the same persons in the past. On the basis of relief, ephedrine taken orally is at least as efficacious as ephedrine applied locally, and its employment is certainly simpler.

Journal of Biological Chemistry, Baltimore

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- Method for Quick Dry Ashing of Blood Plasma and Whole Blood for Determination of Chlorides. W. E. Wilkins and H. D. Jones, Nashville, Tenn.—p. 481.
- Lipid Content of Rabbit Leukocytes. E. M. Boyd and J. W. Stevenson, Kingston, Ont.—p. 491.
- Method for Determination of Cyclopropane, Ethylene and Nitrous Oxide in Blood with Van Slyke-Neill Manometric Apparatus. F. S. Orcutt and R. M. Waters, Madison, Wis.—p. 509.
- Chemical and Physical Studies on Antihemorrhagic Vitamin. H. J. Almquist, Berkeley, Calif.—p. 517.
- Influence of Sodium Glycocholate on Enzymatic Synthesis and Hydrolysis of Cholesterol Esters in Blood Serum. W. M. Sperry and V. A. Stoyanoff, New York.—p. 525.
- Relation of Glycine and Serine to Growth. R. H. McCoy and W. C. Rose, Urbana, Ill.—p. 581.
- Effect of Anticoagulants on Blood Lipids. E. M. Boyd and R. B. Murray, Kingston, Ont.—p. 629.
- Metabolism of Sulfur: XXIV. Metabolism of Taurine, Cysteic Acid, Cystine and of Some Peptides Containing These Amino Acids. Florence R. White, H. B. Lewis and J. White, Ann Arbor, Mich.—p. 663.
- Colorimetric Determination of Free and Combined Cholesterol. Rachel M. Smith and A. Marble, Boston.—p. 673.
- Factors Influencing the Stability of Insulin. M. Sahyun, M. Goodell and A. Nixon, Detroit.—p. 685.
- Metabolism of *d*-Xylulose. H. W. Larson, N. R. Blatherwick, Phoebe J. Bradshaw, Mary E. Ewing and Susan D. Sawyer, New York.—p. 719.
- Reagent for Copper-Iodometric Determination of Very Small Amounts of Sugar. M. Somogyi, St. Louis.—p. 771.

Journal of Immunology, Baltimore

32: 83-170 (Feb.) 1937

- Studies on Serum Fractions: II. Differences in Antigenic Structure of Different Horse Serums. K. Ando, R. Kee and K. Manako, Daiiren, Manchuria.—p. 83.
- Further Investigations on Blood Brain Barrier: Significance of Electrical Charge and β -Potential in the Problem of Blood-Brain Barrier and Capillary Permeability in General. U. Friedemann, London, England.—p. 97.
- Mutual Multivalence of Toxin and Antitoxin. H. Eagle, Philadelphia.—p. 119.
- Experimental Studies on Encephalitis Virus of 1935 Epidemic in Tokyo, with Especial Reference to Its Serologic Difference from Virus of St. Louis Encephalitis. M. Kudo, K. Uruguchi, S. Matsuda and H. Hashimoto, Tokyo, Japan.—p. 129.
- Effect of Experimental Acidosis on Production of Immune Bodies in Rabbit. W. W. Brandes and A. B. Cairns, Dallas, Texas.—p. 137.
- Study of Relation of Temperature to Antibody Formation in Cold Blooded Animals. F. W. Allen and E. C. McDaniel, Albuquerque, N. M.—p. 143.
- *Further Studies on Immunology of *Haemophilus Pertussis*. H. M. Powell and W. A. Jamieson, Indianapolis.—p. 153.
- Immunologic Responses of Tissues Cultivated in Vitro. A. J. Salle and W. A. McOmie, Berkeley, Calif.—p. 157.

Further Studies on Immunology of *Haemophilus Pertussis*.—Powell and Jamieson examined twenty-two pertussis cultures for virulence for mice by mixing the cultures with a certain type of starch solution prior to injection. Seven of these cultures exhibited considerable virulence for mice, killing these animals in doses of 10^{-3} cc. Sufficient virulence has been attained in this way to utilize infections established by starch-treated cultures as an index of immunity of mice to which different batches and types of pertussis vaccines have been administered. To supplement their previous immunization experiments the authors treated four additional groups of mice with additional pertussis vaccines. Of the three Sauer vaccines, the two-year-old lot and the freshly prepared lot gave a high degree of immunity, while the year-old lot gave an intermediate immunity. The Krueger undenatured bacterial antigen gave a high degree of immunity. Thus it appears that a marked immunizing capacity of pertussis vaccines can be shown by the use of white mice in the laboratory, and also that quantitative differences in immunizing effectiveness may be established.

Journal Industrial Hygiene & Toxicology, Baltimore

19: 73-110 (Feb.) 1937

- Occupational Cancer of Lung. L. Teleky, Silbergasse, Vienna.—p. 73.
- Experimental Investigation of "Aniline Cancer." I. Berenblum and G. M. Bonser, Leeds, England.—p. 86.
- Effect of Lead on Tissue Metabolism. D. Dolowitz, J. F. Fazekas and H. E. Himwich, Albany, N. Y.—p. 93.
- Respiratory Protective Devices. C. E. Brown, Pittsburgh.—p. 95.

Journal of Pediatrics, St. Louis

10: 147-294 (Feb.) 1937

- Effect of Various Supplements to Diet on Iron Balance of Anemic Infant. F. W. Schlutz, Minerva Morse and Helen Oldham, Chicago.—p. 147.
- *Comparative Antirachitic Effectiveness of Viosterol, Cod Liver Oil and Percomorph Liver Oil. J. M. Lewis, New York.—p. 155.
- Tetany in the New-Born. C. E. Snelling and A. Brown, Toronto.—p. 167.
- Placental Fluid in Measles Prophylaxis. S. Karelitz, C. K. Greenwald and A. J. Klein, New York.—p. 170.
- Placental Immunity: Method of Determining Dosage of Placental Globulin in Measles Prophylaxis. S. Karelitz, C. K. Greenwald and A. J. Klein, New York.—p. 175.
- Multiple Neuritis from Diphtheria Toxoid: Report of Case. S. J. Wilkinson, Decatur, Ill.—p. 180.
- *Lipomatosis in Insulin Injected Areas in Diabetic Boy, Aged Thirteen and One-Half Years. G. B. Bader and F. Vero, New York.—p. 184.
- Typhoid Fever in Children: Study of Sixty Cases. H. F. Dietrich, Los Angeles.—p. 191.
- Treatment of Gonorrheal Vulvovaginitis with a Special Glucose Tablet: Preliminary Report. A. A. Little Jr., Houston, Texas.—p. 202.
- Endocrine Obesity in Children: Clinical and Laboratory Studies and Results of Treatment. M. B. Gordon, Brooklyn.—p. 204.
- Edema in the New-Born Due to Prelacteal Feeding: Report of Four Cases. G. N. Krost, Chicago, and I. M. Epstein, El Paso, Texas.—p. 221.
- Influenzal Meningitis. N. Silverthorne, D. T. Fraser and C. E. Snelling, Toronto.—p. 228.
- Severe Visceral Complications in Acute Anterior Poliomyelitis: Case Report. B. L. Keyes, Philadelphia.—p. 233.
- Shift in Infant Mortality Rate in Durham County, North Carolina. J. W. Kerner, Durham, N. C.—p. 236.

Antirachitic Effectiveness of Viosterol, Cod Liver Oil and Percomorph Liver Oil.—In order to determine the relative effectiveness of cod liver oil, viosterol and percomorph liver oil, unit for unit, Lewis gave 365 infants 135, 435 or 870 U. S. P. (XI) units daily of one of these antirachitic agents throughout the winter months. The results of the prophylactic study did not indicate any significant difference in the effectiveness of these agents at the levels of the units employed. The degree of protection afforded by these antirachitic substances was extremely high, and only three infants among the 146 infants receiving 135 units daily developed x-ray evidences of rickets. A comparison of the curative response to cod liver oil, viosterol, percomorph liver oil and irradiated cholesterol was made in fourteen rachitic infants. These tests revealed that the daily administration of 435 units of cod liver oil, percomorph liver oil and irradiated cholesterol brought about good healing in two, four and three rachitic infants, respectively, whereas the same number of units of viosterol failed to bring about satisfactory healing in two rachitic infants. The results of the curative study, therefore, would seem to indicate that, rat unit for rat unit, vitamin D of animal source (cod liver oil, percomorph liver oil and irradiated cholesterol) is more effective in the treatment of infantile rickets than is vitamin D of plant origin (viosterol).

Lipomatosis in Insulin Injected Areas in Diabetic Boy.—Bader and Vero report their case of lipoma-like masses in a white boy, 13½ years of age, who had diabetes mellitus for four and one-half years. His diet was high in carbohydrates and low in fat. The disease has been fairly well controlled with two injections of insulin daily, one before breakfast and one before supper. The insulin requirements per day have varied between 50 and 80 units during the last two years. His blood cholesterol levels have varied within normal limits. Two years ago very small swellings were noted in the insulin-injected areas: both biceps, both buttocks and the anterior aspect of both thighs. These swellings were described as localized, edematous, symmetrically distributed tumefactions. In spite of the admonition to avoid these areas in the future, the patient continued to use them for insulin injections because "it hurt less" when these areas were used. As a result of the continuous use of these areas, the swellings have increased steadily in size. These sections show a moderate hyperkeratosis with edema of

the epidermis, portions of which appear to be slightly atrophied. The corium is somewhat edematous, the site of a slight chronic inflammatory reaction. There appears to be a moderate fibrosis of the corium. The principal feature, however, is the attached adipose tissue, which is composed of very large cells and shows evidence of encapsulation. The adipose tissue comes fairly close to the epidermis in one place, and within it one sees a hair follicle and a smooth muscle bundle, as is frequently the case when the skin atrophies. No serious sequel has been observed so far, and the lipomatous process seems to be benign. No therapy has influenced them, but a definite reduction in size can be noticed when further injections in the area are avoided.

Michigan State Medical Society Journal, Lansing

36: 77-130 (Feb.) 1937

- Modern Treatment of Pneumonia. A. E. Price, Detroit.—p. 77.
Side-Stepping Responsibility—via Drugs. T. J. Heldt, Detroit.—p. 83.
Function and Responsibility of the Radiologist in Medical Practice. V. M. Moore, Grand Rapids.—p. 87.
Spontaneous Hypoglycemia in Vagotonic Individual. M. A. Mortensen, Battle Creek.—p. 89.
Early Diagnosis in Tuberculosis. W. H. Barron, Detroit.—p. 93.
Treatment of Ocular Injuries. D. Marshall, Ann Arbor.—p. 95.
Few Comments on Technic of Making Diagnostic Skin Tests. Lucile R. Grant, Grand Rapids.—p. 99.
Therapy of Hyperthyroidism Preceding and During Menopause Era. D. H. Fauman, Detroit.—p. 100.
Report of Skin Abrasion Infected by Gonococcus. E. Van Camp, Battle Creek.—p. 104.

New England Journal of Medicine, Boston

216: 233-272 (Feb. 11) 1937

- Pelvic Inclination: Factor in Slipped Epiphysis and Nonunion of Fracture of Hip. L. T. Brown, Boston.—p. 233.
Preventive Inoculations. D. O'Hara, Boston.—p. 236.
Dermatitis from Phenylhydrazine Compounds: Report of Case. J. G. Downing, Boston.—p. 240.

New Jersey Medical Society Journal, Trenton

34: 73-148 (Feb.) 1937

- Recurrent Functional Hypoglycemia in Juveniles: Review with Particular Reference to Its Convulsive Manifestations. R. E. Jennings, East Orange, and J. M. Rector, San Francisco.—p. 79.
Diet in Treatment of Anorexia. F. H. von Hofe, East Orange.—p. 87.
Early Diagnosis of Cancer of Breast. G. Blackburne, Newark.—p. 89.
Chronic Appendicitis: Its Roentgen Diagnosis. E. A. May, East Orange.—p. 91.
Gallbladder and the General Practitioner. M. E. Rehfsuss, Philadelphia.—p. 95.
Cardiac Arrhythmias from Clinical Standpoint. T. K. Lewis, Camden.—p. 101.
Local Mechanism of Pyloric Control and Gastric Emptying in Man. H. Shay, J. Gershon-Cohen and S. S. Fels, Philadelphia.—p. 105.

Diet in Treatment of Anorexia.—With the thought in mind that young children on the commonly prescribed diet for celiac disease usually have very keen appetites, von Hofe considered it logical to prescribe a diet low in carbohydrates and milk free for anorexia. The response of appetite to this diet was striking; and now over a period of about ten years it has been prescribed for a considerable number of patients, with almost uniformly good results. In fact, if in a period of two weeks the result is not satisfactory, one becomes suspicious of some error in the routine. These children receive a breakfast consisting of bacon, egg, a small slice of Swedish rye bread with butter, stewed fruit and a well ripened banana. Orange juice or any other fruit juices may be included. At noon the meal consists of broth or soup (not creamed), meat, vegetables (but no potato), gelatin or stewed fruits and again a well ripened banana. For dinner the patient is given broth or soup again, vegetables, a fruit or vegetable salad, cottage cheese, one small piece of Swedish rye bread with butter, gelatin or stewed fruit and a well ripened banana. The fruits are stewed with little or no sugar. It is necessary that the mother and all others leave the child while he is having his meal. At the end of twenty minutes to a half hour the table is cleared regardless of how little has been consumed; indeed, the child should be surprised by the lack of interest. If the mother is too sympathetic and finds herself incapable of this routine, it becomes necessary to have a nurse or some intelligent relative carry out the plan. It is essential that the patient be not overtired. When he becomes ravenously hungry, carbohydrates are added in sparing amounts, and later small quantities of milk are introduced. The child is kept on a relatively low carbo-

hydrate and low milk diet for any indefinite time. Later, if the appetite wanes again, the patient is immediately placed on the original diet, but for a short period only. Loss in weight is not uncommon during the first week or two, but with the improvement in appetite this loss is soon made up. In view of the fact that the child is on a relatively low calcium diet, calcium may be administered.

New York State Journal of Medicine, New York

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- Suppuration in Pneumatic Antelabyrinthine Portion of Petrous Pyramid. H. K. Taylor, New York.—p. 231.
Little Recognized Types of Allergy. T. W. Clarke, Utica.—p. 236.
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Postoperative Sedation. R. F. Carter, New York, and G. G. Broad, Syracuse.—p. 255.
Position of Ureters and Trigon in Prolapsus Uteri. Mary Lee Edward, New York.—p. 257.
Tonsillectomy versus Electric Coagulation: Present Status. J. D. Kelly, New York.—p. 263.
Chronic Diffuse Glomerular Nephritis: Diagnosis, Symptoms and Treatment. H. O. Mosenthal, New York.—p. 268.
Bismuth by Mouth in Treatment of Syphilis: Preliminary Experimental Study with Bismuth Chloride (Bismutrate) in Rabbit Syphilis. C. R. Rein and M. B. Sulzberger, New York.—p. 275.
Municipal Syphilis Control. T. F. Laurie, Syracuse.—p. 280.
New York City Plans for Combating Syphilis. C. W. Clarke, New York.—p. 282.
Familial Telangiectasia with Recurring Epistaxis: Successfully Treated with Radium: Review of Literature. M. M. Sterman and J. C. Seal, New York.—p. 287.
Vasomotor Rhinitis. C. S. Nash, Rochester.—p. 293.
Acute Obstruction of Central Retinal Artery: Relieved by Intravenous Sodium Nitrite. B. Esterman, New York.—p. 296.
Treatment of Psoriasis by Colloidal Manganese: Review of Literature and Report of Seventy-Two Cases. H. D. Niles, New York.—p. 298.

Northwest Medicine, Seattle

36: 39-72 (Feb.) 1937

- Virus of Lymphogranuloma Inguinale: Its Cultivation, Immunologic and Clinical Studies. J. T. Tamura, Cincinnati.—p. 39.
Gastric Leiomyoma. J. L. Lindquist and H. E. Mock, Chicago.—p. 42.
Hyperplastic Tuberculosis of Colon. J. W. Read, Tacoma, Wash.—p. 45.
Tuberculosis at University of Oregon. Marian G. Hayes and F. N. Miller, Eugene, Ore.—p. 48.
New Amputation Through Femur at Knee. C. L. Callander, San Francisco.—p. 49.
Hemolytic Blood Transfusion Reaction: Report of Fatal Case. M. W. Hemingway and R. W. Hemingway, Bend, Ore.—p. 53.
*Female Sex Hormone in Involution Melancholia: Preliminary Report. C. C. Carlson, Topeka, Kan.—p. 55.
Nasal Asthma. T. H. Duerfeldt, Tacoma, Wash.—p. 60.

Estrogen in Involution Melancholia.—Carlson performed hormone determination tests of the urine of a group of ten selected cases of depressed psychosis of the involution period. The ages ranged from 48 to 74 years, and the psychosis had existed from six months to seventeen years. The chief symptoms consisted of depression, marked anxiety, feelings of unreality, hypochondriac or nihilistic delusions and minimal mental retardation. The estrogen was determined in the urine of these women after the method of Frank. Determinations were made each week for four weeks. Five patients gave a positive reaction one week out of the four. The other five patients gave negative tests throughout the four weeks. The cases were not chosen because of the results of the tests and it is merely a coincidence that five were positive and five were negative. Ovarian activity was found to be present in one patient twenty-six years after the onset of the menopause. The other four patients had definite ovarian functions one, three, eleven and sixteen years after the onset of the menopause. A definite conclusion from these observations is that some patients suffering from involution melancholia do show some degree of ovarian activity. This evidence is contrary to previous speculations that involution melancholia is caused by a sudden cessation of production of follicular hormone or results from a nonfunctioning of the ovaries. In all patients who did give a positive test, the results were quantitatively less than those found in normal menstruating women but at the same time gave evidence of some ovarian activity. Comparison of the results of this study with the results reported in nonpsychotic women in the meno-

pause reveals an interesting similarity. In the normal menopause the urine may be negative for estrogen or it may show subnormal amounts present in varying quantities. Also it may be negative at one time and positive at another. This similarity may explain why conflicting results have been reported from the use of theelin in psychoses of the involution period. It has been suggested that the reason for failure lies in the marked variations in ovarian functions. While the study of ten cases does not permit definite conclusion, the trend of results indicates that the ovarian function in cases of menopause with depressive psychoses is found to be no different from that reported in the cases of menopause without psychoses. Endocrine changes may play a part in producing the psychosis. However, the observation that the endocrine changes were not uniform in this group of involution melancholia patients would suggest that the endocrine changes of the menopause are not the only factors concerned in the production of a psychosis. Before an endocrine basis for this psychosis can assume a major importance it must be shown wherein these patients differ endocrinologically from women in the normal menopause.

Philippine Islands Med. Association Journal, Manila

16:731-802 (Dec.) 1936

- Value of Yeast in Treatment of Beriberi. W. Vitug and G. F. Austria, Manila.—p. 731.
Observations on Behavior of Ascaris Eggs Deliberately Introduced into Peritoneal Cavity of Monkeys, with Especial Reference to Possibility of Internal Autoinfestation. C. M. Africa and E. Y. Garcia, Manila.—p. 739.
Contribution on Insanity. M. M. Gallardo, Dumaguete, Oriental Negros.—p. 751.
Tertiary Manifestations of Yaws in Larynx. C. D. Ayuyao, Manila.—p. 769.

Public Health Reports, Washington, D. C.

52:125-156 (Jan. 29) 1937

- Sickness Among Male Industrial Employees During Third Quarter and First Nine Months of 1936. D. K. Brundage.—p. 127.

Surgery, Gynecology and Obstetrics, Chicago

64:257-592 (Feb. 15) 1937

- Formation and Treatment of Calculi in Biliary Ducts and Gallbladder. J. Walton, London, England.—p. 257.
Coronary Sclerosis and Angina Pectoris: Treatment by Grafting New Blood Supply on Myocardium. C. S. Beck, Cleveland.—p. 270.
Rationalizing Treatment in Acute Intestinal Obstructions. O. H. Wangenstein, Minneapolis.—p. 273.
Chronic Intestinal Obstruction Due to Lesions of Large Bowel. V. C. David, Chicago.—p. 281.
Treatment of Fractures of Neck of Femur by Internal Fixation. M. N. Smith-Petersen, Boston.—p. 287.
Combined Spleen Clinic: Results with Medical and Surgical Therapy in Splenopathies. A. O. Whipple, New York.—p. 296.
Management of Severe Hyperthyroidism. F. H. Lahey, Boston.—p. 304.
*Resection of Rectosigmoid and Upper Rectum for Cancer, with End-to-End Union. J. S. Horsley, Richmond, Va.—p. 313.
Transurethral Resection, Its Indications, Limitations and Complications. H. C. Bumpus Jr., Pasadena, Calif.—p. 324.
Radium versus Wertheim's Hysterectomy in Treatment of Carcinoma of Cervix. W. F. Shaw, Manchester, England.—p. 332.
*More Conservatism in Cesarean Section. F. W. Lynch, San Francisco.—p. 338.
Essential Features in Fractures of Shoulder. G. E. Wilson, Toronto.—p. 347.
Early Local Care of Face Injuries. V. P. Blair, J. B. Brown and L. T. Byars, St. Louis.—p. 358.

Resection of Rectosigmoid and Upper Rectum for Cancer, with End-to-End Union.—Horsley outlines a method for resection in cancer of the rectosigmoid and upper part of the rectum, with end-to-end union of the intestine, which is apparently as radical so far as permanent cure is concerned as complete evulsion of the whole rectum, while it offers the benefit of preserving the normal function of the lower part of the rectum and anus. Something more than mere existence should be included in the objectives of surgery. If the patient can be made more comfortable and life is made to seem more worth while after a procedure that offers about equal chances of cure of the cancer as other operations, this technic should be adopted. There was no operative mortality from the resection of the rectosigmoid colon with end-to-end union in the author's three cases. There was recurrence in two and the last patient has been operated on too recently to permit a claim of a cure. The first two cases were far advanced, and yet the first patient remained in good health for ten months. The second patient, whose lesion was more in the upper part of the rectum than

in the terminal sigmoid, had good health for several months. It does not appear that either of these patients would have been more likely to be cured of the cancer by a complete extirpation of the rectum. In the first patient the recurrence was chiefly above the rectum, and in the second, though no necropsy was held, there was no evidence to show that the rectum, a short stump of which was left, was seriously affected in the recurrence, and there were palpable masses in the upper part of the abdomen. While these two cases were on the borderline of inoperability, at least a few months of comfortable life resulted, which doubtless could not have been attained by any other procedure.

More Conservatism in Cesarean Section.—According to Lynch, a review of the maternal deaths recorded during 1927 and 1928 in fifteen states in the birth registration areas, made by the United States Children's Bureau, has been followed by similar compilations for cities. The observations in these mortality studies concerning cesarean section attract one's attention because the operation recently has become a common instead of a most uncommon method of operative delivery and because more than one half of the deaths following cesarean section have occurred in women who previously had borne children through the normal birth passages. Moreover, the incidence of cesarean section in these mortality studies has risen from 11 per cent in 1927 to 33 per cent in 1934. Thus cesarean section preceded 11 per cent of all puerperal deaths in or after the seventh month of pregnancy in the report of these fifteen states for 1927 and 1928. This tremendously increased incidence of cesarean section should have reduced the maternal mortality rate in the United States if the indications for the operation were sound and the mortality rate was properly low. The national maternal mortality rate, however, has remained virtually unchanged for many years. This tremendous increase in cesarean section has been initiated both by the public and by the profession—the public because of desire to escape the pain and terror of labor which it has been taught to believe is an unnecessary and unmodern thing, the profession because it feels that improvements in surgical technic must have made safe an operation the surgical mortality of which could have been considerable only in almost antediluvian time. Consequently, physicians without special training in obstetrics or in general surgery undertake cesarean section without full consciousness of the threat that their surgery entails. Its application should be limited to those cases in which valid reasons for its use exist. To achieve such consideration and consequent limitation, the American College of Surgeons should restate indications for cesarean section valid at the present time and should instruct hospitals certified by its board to permit the operation only after consultation with one of the chief obstetricians of its senior staff. Only by such means can the profession safeguard an operation that is at present a dangerous procedure.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

45:61-118 (Feb.) 1937

- Methods of Investigation of Functional Uterine Hemorrhage. C. F. Fluhmann, San Francisco.—p. 61.
The Fetal Heart. H. F. Schluter, Sacramento, Calif.—p. 71.
Superior Hypogastric Plexus and Its Relation to Gynecology: Description and Clinical Demonstration. P. G. Flothow, Seattle.—p. 79.
Presacral Sympathectomy. A. M. Vollmer, San Francisco.—p. 90.
Breech Delivery: Review of 218 Cases. B. J. Hanley and G. Rosenblum, Los Angeles.—p. 98.
*Occlusion of Inferior Mesenteric Vessels. L. P. Gambee, Portland, Ore.—p. 105.

Occlusion of the Inferior Mesenteric Vessels.—Gambee gives the essential processes responsible for the clinical picture produced by occlusion of the inferior mesenteric vessels. The symptom that first challenges the attention of the patient is nearly always pain of a colicky character. It may begin insidiously or it may be severe at the onset. The time of onset of the pain does not necessarily coincide with the lodgment of the embolus in the mesenteric artery. In some cases pain may not be appreciable even though a thrombus does complete the obstruction begun by an embolus. A localization of this pain in the left lower part of the abdomen along the left colon is a significant thing. It contrasts strikingly with the midabdominal pain usually associated with serious disturbances in the small intestine. The localization of pain may play a large part in differentiating occlusive vascular lesions of the superior from

those of the inferior mesentery. The next most constant symptom presented is shock. The amount of intestine involved and the rapidity with which the process develops must largely determine the degree of the shock. Vomiting in these cases is as frequent and as copious as it is in other forms of acute intestinal obstruction and is particularly significant when there is blood in it. When diarrhea and bloody stools are found with other evidence of acute intestinal obstruction, the differential diagnosis usually lies between intussusception and mesenteric vascular occlusion. Since some degree of hemorrhage is invariably found in all vascular accidents of the mesenteries, it would seem that every case in which this vascular occlusion is situated in the inferior mesentery should be accompanied by demonstrable blood in the stool. Local tenderness may indicate with some accuracy the location of the segment of infarcted intestine. Distention has been reported in from 70 to 80 per cent of the recorded cases of mesenteric vascular occlusion. The physiology of this phenomenon suggests that there is no form of acute intra-abdominal disorder which can bring on distention so rapidly as occlusion of the superior mesenteric veins. The distention that comes in the wake of infarctions in the left colon involves the colon and small intestine proximal to the infarcted area and suggests an advanced peritonitis. Leukocytosis of a polymorphonuclear type ranges between wide limits. The infarction, with hemorrhage into the peritoneal cavity, with peritonitis as well as splanchnic congestion and dehydration, is reflected in the blood count. Its chief significance in mesenteric vascular accidents arises from the fact that it is associated with a thready pulse and a subnormal temperature.

Wisconsin Medical Journal, Madison

36:73-148 (Feb.) 1937

- Bleeding Before the Menopause. J. J. Horwitz, Milwaukee.—p. 87.
*Bleeding During Early Pregnancy. J. D. Owen, Milwaukee.—p. 94.
Bleeding in Late Pregnancy. J. W. Harris, Madison.—p. 101.
Amebiasis. J. L. Miller, Chicago.—p. 106.
Insulin Shock Therapy of Schizophrenia (Dementia Praecox). H. H. Reese, Madison.—p. 111.

Bleeding During Early Pregnancy.—Owen states that gestation itself accounts for more than 90 per cent of vaginal bleeding in early pregnancy. Spruck observed periodic vaginal bleeding (physiologic) with no demonstrable cause in nineteen of 9,000 pregnant women. This bleeding approaching the normal menstrual flow, in both amount and duration, in only 0.05 per cent. Pathologic bleeding not directly due to pregnancy may be caused by varicose veins, hemorrhage from a polyp, fibromyomas of the cervix, cervical erosion, carcinoma of the cervix, focal endometritis with ulceration, fibromyomas and pregnancy superposed on an adenocarcinoma of the uterus. In pathologic bleeding directly due to pregnancy fifty cases of cervical pregnancy have been reported, the diagnostic triad of which consists of brisk vaginal bleeding, complete absence of uterine cramps or pelvic pain and palpation of an enlarged, pear-shaped cervix containing the embryo. Evacuation with the finger should be attempted. If cervical dilatation cannot be accomplished easily, or if the fetus is too large to remove through the partially dilated cervix, vaginal hysterotomy should be performed. Severe hemorrhage often accompanies the operation. Extra-uterine pregnancy causes the death of 1,000 women yearly in this country. Tubal pregnancy occurs once in every 300 gestations. The history of a skipped or delayed period, followed by vaginal spotting, suggests an ectopic gestation. Ectopic pregnancy occurs more often in multiparas and in women who have a scar in the iliac region. This fact suggests that these patients have had pelvic inflammatory disease or a corrective uterine operation, which may be followed by prolapse, edema or kinking of the fallopian tubes. In hydatidiform mole, a lesion of the fetal portion of the gestational sac, vaginal bleeding is the commonest complaint. The flow generally is slight, rusty and serous. Hydatidiform mole is a potentially malignant tumor. The immediate dangers are hemorrhage, perforation of the uterus and puerperal sepsis. The maternal mortality is 10 per cent. Chorionepithelioma develops in from 5 to 10 per cent of patients who have had a hydatidiform mole. About 45 per cent of chorionepitheliomas follow mole, 30 per cent follow abortion and the remainder follow ectopic gestation and labor at term.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:105-152 (Jan. 16) 1937

- Classification of Glycosurias. T. H. Oliver.—p. 105.
Direct Bronchoscopic Investigation in Hemoptysis Without Physical or Radiologic Manifestations. J. E. G. McGibbon and E. T. Baker-Bates.—p. 109.
Results of Corneal Transplantation. J. W. T. Thomas.—p. 114.
*New Treatment for Chronic Leukorrhea. A. Bourne, L. T. Bond and K. A. McGarrity.—p. 116.
Adherent Fallopian Tube Causing Intestinal Strangulation. F. M. Collins.—p. 119.

Treatment for Chronic Leukorrhea.—Bourne and his associates considered that, if the entire mucosa of the cervix could be destroyed by one application of a chemical agent without the necessity of an anesthetic, there would be a prospect of a real cure of leukorrhea. The substance chosen was a saturated solution of zinc chloride in water. Porous clay pencils were used as the medium for introduction. They were 1½ inches long and of different diameters. If these pencils are placed in a saturated solution of zinc chloride for ten minutes, they will become fully charged with the salt and ready for use. In most cases there is no difficulty in inserting one of a suitable size without pain, and it is easy to remove by the wire passed through a hole drilled in the proximal end of the pencil. The absorption of zinc chloride by the tissues is fairly constant according to the size of the pencil and the duration of the application, and it is sufficient to produce necrosis of the mucosa extending from about 2 to 4 mm. deep. If the dose of zinc has been insufficient, either because too small a pencil has been used or because the time of application is too short, the zone of necrosis will be uneven or not deep enough to affect all the glands, and partial failure will follow; on the other hand, if the dose has been excessive, necrosis may penetrate too deeply. In these cases a large slough, representing a cast of the major part of the cervix, tunneled by its canal, may separate about the seventh day, but even though so much tissue has been removed the authors have never seen anything more than very slight bleeding at the time of separation, and in one or two cases, after removal and examination by the microscope, the canal was found to be of normal size and lined by epithelium. The type of cervix most suitable for treatment by zinc chloride is the one that has not been deeply lacerated and is therefore able to hold the pencil in close contact with its wall throughout its whole length. A strip of gauze moistened with a 5 per cent solution of sodium bicarbonate is loosely packed around the cervix and firmly against the os to maintain the pencil in position. The pencil is withdrawn in from two to four hours, depending on its size. No further treatment is necessary. The subsequent clinical course is as follows: For two or three days there is no discharge; this is due to the complete necrosis of the mucous membrane, which has not yet begun to separate as a slough. About the third or fourth day it reappears and increases until the sixth or seventh day, when a little blood is usually noticed. This corresponds to the separation of the necrotic mucosa as a slough, either in one well defined gray mass or in the form of small particles and shreds. For a few days there is a profuse seropurulent discharge, which gradually diminishes during the next four weeks, until finally there is nothing more than the normal moisture of the vagina.

Journal of Anatomy, London

71:161-318 (Jan.) 1937

- Early Human Ovum (Thomson) in Situ. P. N. B. Odgers.—p. 161.
Human Embryo of Twenty-Five Somites. C. M. West.—p. 169.
Development of Infra-Umbilical Portion of Abdominal Wall, with Remarks on Etiology of Ectopia Vesicae. G. M. Wyburn.—p. 201.
Innervation of Periodontal Membrane of Cat, with Some Observations on Function of End Organs Found in That Structure. W. Lewinsky and D. Stewart.—p. 232.
Relations of Endogenous and Exogenous Factors in Bone and Tooth Development: Teeth of Grey-Lethal Mouse. H. Gröneberg.—p. 236.
Ossa Suprasternalia in Whites and American Negroes and Form of Superior Border of Manubrium Sterni. W. M. Cobb.—p. 245.
Crossed Ectopia of Kidney and Its Possible Cause. Alice Carleton.—p. 292.
Some Abnormalities of Adrenal Gland of Mouse with Discussion on Cortical Homology. H. Waring and E. Scott.—p. 299.
Digastric Muscle of Phalanger Orientalis and Maculatus. F. H. Edgeworth.—p. 315.

Journal of Tropical Medicine and Hygiene, London

40: 13-24 (Jan. 15) 1937

- The Therapeutics of Malaria. E. C. Spaar.—p. 13.
 Bowel Symptoms in Bilharzia Disease. F. G. Cawston.—p. 15.
 Resistance of *Melanoides Tuberculata* (Müller) to *Schistosoma*. F. G. Cawston.—p. 16.

Lancet, London

1: 125-184 (Jan. 16) 1937

- *Tuberculous Disease of Abdominal Lymphatic Glands. G. H. Colt and G. N. Clark.—p. 125.
 Intradermal Tests for Susceptibility to Whooping Cough. B. O'Brien.—p. 131.
 Diagnosis of Whooping Cough: Complement Fixation and Intradermal Tests. J. P. J. Paton.—p. 132.
 *Nevocarcinoma of Skin and Mucous Membranes. I. G. Williams and L. C. Martin.—p. 135.
 *Fuchs Serum Proteolysis Test for Malignancy: Report of 170 Examinations. D. L. Woodhouse.—p. 138.
 Intracranial Pressure During Barbitol Narcosis. J. S. Horsley.—p. 141.

Tuberculosis of Abdominal Lymphatic Glands.—From 1923 to 1932 Colt and Clark saw 239 cases of tuberculous disease of the abdominal lymph glands. Thirty-eight patients with caseous mesenteric glands were operated on, some of them for unrelated conditions, during acute obstruction or for acute appendicitis. Roentgen examination was made in eighteen cases and, in eleven, areas of calcification were seen suggestive of glands that had calcified or had begun to calcify. Many of these patients were admitted as cases of acute or subacute appendicitis and the figures show that the two conditions frequently coexist. In twenty-nine of the thirty-eight cases it was possible to excise the affected glands. From the suggested relationship between a diseased appendix and caseation it seems that the appendix should generally be removed. From a study of the 201 consecutive cases of calcareous mesenteric glands it seems that during a period of from a few months to a year or more each caseous and calcifying gland may be a source of danger. This does not necessarily correspond with the period during which the patient is actually in danger. One or two glands may caseate and commence to calcify. Others may break down some considerable time after the first. The cycle is gone through again with another danger period to the patient. There is no doubt about this happening, as in some of the cases caseous glands coexisted with calcified glands. That a natural cure by complete calcification occurs in a large proportion of cases must be obvious. That tuberculous disease of the mesenteric glands does embarrass the absorption of fat is undoubted. In a number of cases, calcareous glands are present in the abdomen without giving rise to any complaint whatever. In others, apart from some slight tenderness and hyperesthesia in the right lower quadrant of the abdomen or the umbilical region, there may be no other physical sign to be made out. There may be some rigidity in the right iliac fossa. There is usually some distention of the abdomen, which may be more marked during attacks of pain. Roentgen examination of the abdomen is generally conclusive. Of the 166 cases in which operation was required, twenty-two were untraced. In thirty-five of the 201 cases, reoperation was required; three patients died shortly after operation, two of them having been admitted with acute obstruction and the third being in a very obese woman whose wound burst nine days after the removal of a chronically inflamed appendix and of a few calcareous glands and the freeing of some light adhesions. Recent general peritonitis was present; the cause of which was not apparent at postmortem. The fourth death occurred from mitral stenosis two years after postoperative hemiplegia. Of the remaining 163 cases, 144 were traced and the results were found to be excellent in 109, good in seventeen, poor in six and bad in eight.

Nevocarcinoma of Skin and Mucous Membranes.—In their analysis of twenty-five cases of nevocarcinoma admitted to the Middlesex Hospital during 1928 to and through 1935, together with some cases of benign melanomas, Williams and Martin correlate the histologic and clinical types with prognosis and emphasize the clinical features. Pack, quoted by Adair (1936), in a careful clinical investigation found that every individual has at least twenty pigmented spots on his person. These spots are important for two reasons—they may cause disfigurement or become malignant. The authors' five patients having undoubted "congenital" nevocarcinoma are alive and well without recurrence, one for five years, three for two years

and one for one year after treatment. Of the twenty "acquired cases," fifteen are dead. Of the five patients who are still alive, the survival rate is one for seven years, one for six years, two for four years and one for two years. In two of these patients, recurrences occurred in the first year after treatment and received yet more radical surgical treatment. The review has impressed on the authors that improvement in results can be achieved only by the removal with a scalpel of outgrowing pigmented congenital tumors exposed to friction by shoes, clothing or toilet. The original tumor has been known to double its size within forty-eight hours and the disease should be included among the "surgical emergencies." However small the primary lesion, a wide excision with at least 2 inches of normal skin, together with an extensive radical dissection of the lymphatic glands and fascia is essential. When this necessitates amputation of a limb, it should be advised without hesitation. A full carcinoma-lethal dose of x-rays should be applied in all cases, and even when radical surgery is possible this course of treatment should be given as a postoperative measure.

Fuchs Serum Proteolysis Test for Malignancy.—Woodhouse examined 170 serums by the Fuchs proteolysis method, and up to the present the diagnosis in 120 is sufficiently established (usually by operation, histologic or postmortem examination) for comparison with the serum reaction. In fifty-three malignant cases examined by the Fuchs proteolysis test, correct results were obtained in fifty. The test also gave correct results in thirty-eight of forty-two nonmalignant cases. The serum from patients who had previously received irradiation gave negative reactions to normal protein in almost every instance.

Medical Journal of Australia, Sydney

1: 1-40 (Jan. 2) 1937

- Recent Progress in Anesthesia. S. V. Marshall.—p. 7.
 Chemical Warfare. D. M. McWhae.—p. 14.
 Treatment of Civilian Gas Casualties. L. Male.—p. 18.

1: 41-74 (Jan. 9) 1937

- Surgical Education. A. Newton.—p. 41.
 *Mechanism of Visceral Pain. H. J. Wilkinson.—p. 48.
 Funny Turns. S. O. Cowen.—p. 58.

Mechanism of Visceral Pain.—Wilkinson has discovered the painful area in visceral pain by detecting an area of skin that appeared to him to be cooler to the touch. He first observed this in a patient complaining of epigastric pain. When he placed his hand on this region there was a spot that felt definitely cooler to the touch than the surrounding areas. Normal stimulation of the visceral afferents merely causes reflex changes in the intestine; there are no well defined alterations of consciousness and there are certainly no sensations of pain. More violent stimulation of the intestine leads to increased bombardment of the sympathetic nuclei in the lateral cornu of the cord, with the result that the impulses pass over not only into those neurons ultimately connected with the intestine but also into adjacent vasomotor neurons that innervate the peripheral vessels. This causes vasoconstriction and associated conditions in these areas, thus providing the adequate stimuli for the pain nerve endings. Pain impulses thus arise in these superficial somatic areas and pass by way of the posterior root ganglions into the cord and thence by way of the secondary neurons of the pain path, the fibers of which run in the posterior spinothalamic tract to the thalamus and then on to the cortex. When this occurs, sensations of pain are experienced. Briefly, the visceral afferents, when adequately stimulated, cause reflex vasoconstriction in the somatic peripheral structures, and conditions thus arise which lead to stimulation of the pain endings and to the production of pain sensations. The pain is thus felt in the somatic tissue not because it is merely "referred" but because the pain nerves are actually stimulated here. The lowering of the skin temperature is merely a manifestation of the vasoconstriction and associated phenomena which provide the adequate stimulation for pain impulses and is not to be regarded as the cause of the pain. The pain occurs merely approximately in the midline because, owing to the anastomoses of the vessels, it is in the midline that the phenomena will be most intense. This mechanism also explains why a pain is sometimes felt in the back; in fact, the pain in the back is in some cases the only pain felt. Further, the combined sensations of pain in the anterior abdominal wall and in the back may

give rise to the judgment of the pain as being deep seated. When the pain is felt only in the midline and a "cool" spot is identified and infiltrated with procaine hydrochloride, the pain appears to "migrate" to another part of the segment involved. This is due to the fact that the patient experiences only the more intense pain and, when this is abolished, the less intense pain, if it exists, is felt in another part

Mémoires de l'Académie de Chirurgie, Paris

63:147-181 (Feb. 10) 1937

Tumor of Carotid Gland: Complete Extirpation and Conservation of Three Carotids: Cure. M. G. Migniac.—p. 165.

*Late After-Effects from Eight Total Thyroidectomies in Nonexophthalmic Cardiac Insufficiency and Angina Pectoris. C. Lian, H. Welter and J. Facquet.—p. 171.

Thrombo-Arteritis of Large Vessels of Right Upper Extremity: Resection of Humeral Artery. M. A. Bréchet.—p. 178.

Thyroidectomy in Nonexophthalmic Cardiac Insufficiency and Angina Pectoris.—Spurred by the recent communication of Santy and Bérard, Lian and his associates describe their own observations following total thyroidectomies which they performed on three patients with cardiac insufficiency, but with a normal thyroid, two patients with mitral and aortic disorders in connection with cardiac insufficiency and three patients with angina pectoris with cardio-aortic lesions. The first three patients show no discomfort from their slight thyroid insufficiency, except for some chilliness and some increase in weight. They all take small quantities of digitalis. The first patient with the mitral disorder had an aortic insufficiency and complete arrhythmia which developed a few months after the operation, to which were later added other disturbances, including loss of psychic equilibrium. After some stay in the country her condition improved, but she died suddenly nine months after the operation. In the second mitral patient there was loss of dyspnea on exertion, but the liver remained large, and chilliness, bloating and some apathy followed in the wake of the operation. The cardiac insufficiency returned and the fatal end was precipitated by severe dyspnea. After the thyroidectomy the first patient with angina pectoris could be somewhat on her feet, but she also soon became depressed and edematous and later mentally deranged. At necropsy the coronary arteries were found to be completely obliterated. The second angina patient enjoyed good health for three months after the operation but later on had about two attacks of angina daily and died from coronary atheroma. The third patient with angina pectoris was an obese woman who had dyspnea on exertion. After the operation one grave attack of dyspnea could be checked by a small injection of thyroid extract. The patient continues to have attacks of angina and her sleep is disturbed by difficult breathing. The lesson drawn by the authors is that subtotal thyroidectomy would have given much better results, especially if the patients had been operated on at an earlier stage of their disease.

Presse Médicale Paris

45:185-208 (Feb. 6) 1937

Symptomatology of Undulant Fever: Statistical Study. R. M. Taylor, M. Lisbonne and L.-F. Vidal.—p. 185.

Combination of Gout with Diabetes. P.-L. Violle.—p. 186.

*Relation Between Selenium Poisoning and Pellagra. R. de Rohan-Barondes.—p. 188.

Action of Phrenicectomy on Bronchopulmonary Secretions: Its Mechanism. C. Bibicescu and G. Polatos.—p. 190.

Selenium Poisoning and Pellagra.—According to de Rohan-Barondes, selenium is encountered in the human body under certain abnormal conditions. Selenium alkalis and oxides are toxic. Its oxide given orally in minute quantities seems to contribute to the oxidation of the body sulfur. It is used for this reason in the treatment of cancer. Animals fed on plants rich in selenium become paralytic and die from "blind staggers," and the U. S. Department of Agriculture recommends the saturation of the soil with sulfur. Comparison of the symptoms of selenium poisoning with those of pellagra shows that the gastro-intestinal disorders and the mental and nervous derangements are identical in the two diseases and that the same skin symptoms occur in the two when the patients are exposed to strong light. Typical symptoms of pellagra have been observed in alcoholic patients who drink cheap beverages made

of corn probably containing too much selenium. A diet rich in sulfur and yeast seems to have an immunizing effect on selenium toxicosis. But in cases in which the liver and the gastro-intestinal tract have been exposed to too much damage this diet will probably be of little use. It is necessary to examine chemically and spectroscopically all food coming from plants growing in pellagra regions. Even if the ingested quantity is small, its long continued intake is likely to lead to accumulation and severe toxicosis, especially in persons with low tolerance.

Revue de la Tuberculose, Paris

2:1153-1368 (Dec.) 1936. Partial Index

Practical Orientation of Thoracoplasty in Treatment of Pulmonary Tuberculosis. F. Tobé and H. Joly.—p. 1154.

Pulmonary Sclerosis. S. Doubrow.—p. 1175.

Pure Tuberculous Tracheobronchial Adenopathy in Allergic Adult. E. Coulaud and J. Dugas.—p. 1177.

*Value of Negative Tuberculin Reactions. E. Coulaud.—p. 1185.

Experimental Study of Relations Between Allergy and Immunity. E. Coulaud.—p. 1190.

*Action of Creosote in Pleural Irrigations. J. Arnaud, Chadourne and R. Weiller.—p. 1192.

Some Particulars in Contralateral Pneumothorax. E. Libert.—p. 1200.

Value of Negative Tuberculin Reactions.—Coulaud states that the majority of phthisiologists maintain that there is no tuberculosis when the BCG reaction is negative. Yet the facts militate against this assertion and neither the value of the cutaneous nor that of the intradermal reaction can be absolute. About thirteen years ago he reported a method of imparting a slowly progressive tuberculosis to the rabbit, which even after many years showed no positive tuberculin reaction. Calmette, having vaccinated cattle with BCG and believing them to be cured, had them slaughtered and was surprised to find caseous mesenteric nodes containing live Koch bacilli. Observations of temporary anergy have been made after grip or measles or at the end of gestation. In the life of women it is the onset of new phases, such as puberty, menstruation, pregnancy and the menopause, which are characterized by a physiologic hyperthyroidism which causes an eclipse of the allergic reaction. Thyroid treatment often subdues tuberculin reactions, while ovarian treatment enhances them. Anergic young women may even be made allergic by ovarian treatment. In thousands of cutaneous reactions the author found that they were negative in women who had undergone ovariectomy or appendectomy. The allergic state is by no means consistent and unchangeable. Any reinfection or discharge of endogenous bacilli may modify the tuberculin reaction. On a former occasion the author made subcutaneous injections of BCG in allergic patients, expecting the tuberculin reactions to become stronger. The reactions were not only modified but were even weakened in the majority of cases. Furthermore, all kinds of factors, known and unknown, may temporarily or permanently modify the allergic intensity. He feels that his deductions have value only for a populous center, such as Paris. People living in open spaces or in northern countries may not have come in contact with tuberculosis.

Creosote in Pleural Irrigations.—Arnaud and his collaborators made the observation that the draining of tuberculous pleurisies with effusion is often but a first step leading to thoracoplasty. Therefore they were justified in attempting irrigation first and, after having tried other medicaments, they used in one case a 10 per cent solution of creosote in alcohol. During the following hours the temperature fell from 102.5 to 98.5 F. Three further irrigations were given at intervals of two days, and after every irrigation 300 cc. of the solution was left in the pleural cavity. Cultures of the pleural fluid soon were sterile. Two weeks later the temperature rose again to 105 F. and pneumococci were observed in the culture but were of little virulence. A new irrigation of creosote solution proved itself immediately effective: there was a strong fibrinous reaction and a considerable diminution of pneumococci. Similar observations were made in two other cases with even better results. To trace the effects of creosote solutions on purulent pleurisies the authors mixed one drop of creosote with a variable number of drops of young culture in bouillon so as to obtain mixtures of from 0.1 to 0.01. These creosote cultures were put into the incubator for from three to twenty-four hours and then recultured. Only the 0.01 cultures were not sterile after a contact of six hours. Creosote is naturally

injurious to the skin, but it is well tolerated by the pleura, especially when the pleura is thick. The elimination of the creosote could not be followed up. The amount of phenol derivatives in the urine was insignificant. No kidney trouble resulted.

Minerva Medica, Turin

1: 79-102 (Jan. 28) 1937

Infections and Parasitic Diseases Prevailing in Somaliland During Recent Colonial War. G. Mariani.—p. 79.

*Phenols in Blood in Uremia: Technic for Determination. F. Marcolongo.—p. 83.

Lithiasis of Salivary Gland: Case. O. Salico.—p. 91.

Technic for Determination of Phenols in Blood.—Marcolongo points out the disadvantages of present methods for the determination of phenols in blood in uremia. He describes a new colorimetric micromethod to demonstrate ether soluble and ether insoluble volatile phenols in blood. The apparatus used is of Becher's type. The technic is as follows: Five or 10 cc. of blood is made uncoagulable and put in a glass beaker of 1 liter capacity with 200 cc. of distilled water, 2 Gm. of sodium bicarbonate and 2 Gm. of sodium sulfate. The mixture is vigorously stirred and distilled. The first distillate (free phenols) is obtained in a quantity of 100 or 150 cc. The solution remaining in the beaker is allowed to cool. Water is added to the same amount (100 or 150 cc.) as that obtained by distillation, as well as 2 cc. of concentrated sulfuric acid. Distillation is then repeated. The second distillate (bound phenols) is obtained in a quantity of 100 or 150 cc. The distillates are subjected separately to the process of removal of the phenols by ether. The ethereal phenol extracts, separately, are neutralized and concentrated by evaporation of ether to a volume of 15 cc., to which 5 cc. of distilled water is added. The aqueous residues from the two distillates are mixed and concentrated in an electric oven from a total volume of 200 cc. to 40 cc. The colorimetric Moir test is then performed, separately, on 40 cc. of the mixture of equal parts of the two aqueous ethereal phenol extracts and on 40 cc. of the concentrated aqueous residue from both distillates. Positive and strongly positive results of the reaction are shown by the appearance of orange-red and red respectively. The intensity of the color is reached in fifteen or thirty minutes. Negative results of the test are shown by the appearance of a greenish yellow. The control solutions for colorimetry are prepared by diluting, in distilled water, a 1 per thousand phenol solution in tenth normal hydrochloric acid so that 20 cc. of each control solution contains 0.0125 and 0.025 mg. of phenol respectively. The solution used in the test is that of the closest color to the unknown one. For lighter colors, such as those given by the residues of the distillates, 20 cc. of the control solution containing 0.025 mg. of phenol is brought to a volume of 40 cc. by adding distilled water to it. Extremely weak phenol solutions containing 0.005 mg. of phenol in 20 cc. of the solution give a greenish yellow which correspond to negative results of the Moir test. The colorimetry is made within fifteen to thirty minutes of the appearance of the color. Final calculations of colorimetry are made in the usual way: The figure given in the colorimetric scale by the control solution used is divided by that given by the solution of unknown phenol content and the result is multiplied by the figure that shows the concentration of the original control solution used (either 0.0125 or 0.025). The result is then multiplied by 10 or 20, depending on whether 10 or 5 cc. of blood was used in the test. The final figures indicate the phenol contents in milligrams per hundred cubic centimeters of blood. The advantages of the method described by the author are the following: The amount of blood used is small. The technic is easy and results are obtained within an hour. The colorimetric reaction is not subject to errors. The test is of relative precision, sensitivity and specificity. Substances other than phenols, the presence of which may render uncertain the results of the test, are eliminated by the process of etherization. The loss of phenols during the procedure is small and one is able to determine the presence and amount of both ether soluble and insoluble phenols. The amount of insoluble phenols in the blood is small. The importance and significance of the latter will be discussed further by the author.

Rivista di Pathologia e Clin. Tubercolosi, Bologna

11: 1-84 (Jan. 31) 1937

Lipids in Blood in Pulmonary Tuberculosis. E. Lenci.—p. 1.
Tubercle Bacilli in Sputum Obtained by Culture Procedure. F. Addati.—p. 14.

*Advisability and Indications of Inducing Exudative Pleurisy. S. Gunella.—p. 20.

Indirect Contralateral Pneumothorax: Case. W. Grappa.—p. 30.

Adhesive Mediastinal Pleuritis: Pathogenic, Clinical and Statistical Study. R. Rimini.—p. 42.

Experimental Tuberculous Cerebral Meningitis. E. Zamboni.—p. 56.

Inducing Exudative Pleurisy.—Gunella states that exudative pleurisy, spontaneously developed in the course of artificial pneumothorax, has a favorable action on the latter in certain cases of unilateral pulmonary tuberculosis. In bilateral tuberculosis it has a favorable action on the tuberculous lesions of the pleuritic side but an unfavorable action on those of the contralateral side. The author discusses the advisability and indications of inducing exudative pleuritis. The latter is a complication of pneumothorax, its beneficial effects are restricted to few cases and, spontaneously developed or artificially induced, it may be followed by more or less grave immediate or late complications. Induction of exudative pleurisy is indicated only in unilateral pulmonary tuberculosis on the following premises: when total or subtotal pneumothorax fails to close the cavities and in the presence of intractable adhesions that prevent collapse, especially if there is hemoptysis. In both cases induction of exudative pleuritis will be resorted to if the adhesions are beyond reach of the Jacobea's resection, when phrenic-coxeresis or partial thoracoplasty is not indicated and when the results of any of these operations are unsatisfactory. Otherwise it is advisable to prefer the operations rather than induction of exudative pleuritis.

Annaes Brasileiros de Gynecologia, Rio de Janeiro

3: 1-94 (Jan.) 1937

*Primary Actinomycosis of Fallopian Tubes. G. De Faria and A. Fialho.—p. 1.

Female Obesity According to Conceptions of Constitutionalist School. T. Botelho.—p. 25.

Primary Actinomycosis of Fallopian Tubes.—According to De Faria and Fialho, only two cases of tubal actinomycosis out of a total of seventy-nine cases of actinomycosis of the genitalia are reported in the literature. The authors' case is the first reported in Brazil and the third reported in the literature. The diagnosis of genital actinomycosis is made, as a rule, by microscopic examination of the involved organ which has been surgically removed. The infection takes place through the digestive tract and sometimes through the blood. Puerperium and lactation stimulate the condition to a malignant evolution. The treatment consists in early operation with removal of involved organs before rupture of the tumors with consequent dissemination of the infection. In the case reported a preoperative pathogenic diagnosis was not made. The purulent secretion of the vagina failed to show the fungi on microscopic examination. The disease evolved, simulating adnexitis. The treatment was bilateral salpingectomy followed by drainage and administration of sodium iodide intravenously. On microscopic examination the tubes were found to be the seat of infiltration and other changes of the mucosa. The tubal tumors contained mycelia and actinomycotic granulations. The recovery of the patient was verified three years later.

Klinische Wochenschrift, Berlin

16: 185-216 (Feb. 6) 1937. Partial Index

*Ion Concentration in Allergic-Hyperergic Inflammation. R. Knepper.—p. 188.

Anti-Inflammatory Action of Bile Acids. E. Hesse, R. Vonderlinn and Liesbeth Zeppenheisel.—p. 190.

*Clinical Observations on Question of Neurogenic Hypertension. K. Schneyer.—p. 192.

Luteinizing Action of Follicle Hormone by Modification of Leutogenic Secretion of Anterior Lobe of Hypophysis. W. Hohlweg and A. Chamorro.—p. 196.

Acute Otitis Media and Diabetes. H. Barth.—p. 198.

Sinistropositio Coli. H. Albers.—p. 201.

Prontosil in Treatment of Erysipelas and Simultaneously Existing Renal Disease. A. Virgil, I. Pascal and V. Lăzărescu.—p. 203.

Ion Concentration in Allergic-Hyperergic Inflammation.—Knepper, after directing attention to Schade's observation that inflammation is usually accompanied by an acidosis of the tissues, that is, by an increase in the hydrogen ions,

suggests that, since allergic-hyperergic inflammation differs in many respects from normo-ergic inflammation, it differs also with regard to the molecular disturbance. He determined the ion concentration in allergic-hyperergic infiltrates and found that this type of inflammation is not accompanied by a tissue acidosis but presents alkaline values. He shows that this observation has not only theoretical but also practical therapeutic significance. Calcium is often given in allergic disorders and effects a change toward acidosis. The author suggests that the therapeutic effect of calcium is probably exerted by way of this acidosis and not merely by reducing the permeability of the vessels. He thinks that in rheumatism, which is also considered an allergic-hyperergic inflammation, salicylic acid and other antirheumatics act by inducing tissue acidosis.

Question of Neurogenic Hypertension.—Schneyer points out that in animals it is possible to produce an arterial hypertension by the exclusion of some of the pressoreceptor circulatory nerves. Reasoning that clinical studies on whether a corresponding form of hypertension exists in human subjects would throw light on some disputed questions in the problem of hypertension, the author made observations on 224 patients with hypertension and on ninety persons of the same age groups but without hypertension. The results of studies on the relationship between blood pressure and the pulse rate, of the carotid pressure test and of other investigations justified the assumption that there is no neurogenic hypertension in human subjects that corresponds to the hypertension resulting from the exclusion of pressure nerves in animals. Moreover, there is evidence that the hypertension which in animals follows the exclusion of the pressor nerves is not permanent but subsides again.

Zentralblatt für Gynäkologie, Berlin

61: 241-304 (Jan. 30) 1937. Partial Index

- Some Interesting Hysterosalpingograms and Their Relation to Clinical Aspects. W. Thiel.—p. 248.
Subserous Effusion of Blood of Obscure Etiology in Right Uterine Tube Before Menarche in Girl, Aged 12. S. Ermich.—p. 258.
Chemical Diagnosis of Pregnancy According to Visscher and Bowman. R. Wagner.—p. 262.
*Reaction for Determination of Normal and Ectopic Pregnancy by Means of Infusoria. N. J. Kustallow.—p. 269.
*Positive Aschheim-Zondek Reaction in Tuberculous Disease of Uterine Tubes. A. von Latzka.—p. 277.

Determination of Pregnancy by Means of Infusoria.—Kustallow mentions the different pregnancy reactions and then points out that he himself aimed to find a test object that would permit a correct and rapid determination of pregnancy. He attached especial importance to the results in ectopic pregnancy. As test object he employed infusoria, namely, *Ciliata paramecium-caudatum*. He places a drop of hay solution with infusoria on a slide (without coverglass) and examines it under the microscope, which reveals that the animalcules move rapidly in straight lines. Then he adds a drop of catheter urine. If the urine is from a pregnant woman, the animalcules commence to move around their longitudinal and transverse axis and become grouped in piles (a sort of agglutination). They have a tendency to move toward the periphery, and after from thirty to ninety seconds complete cessation of all movements usually results. Shortly before movement stops, some of the animalcules undergo destruction: first, a rocket with a fanlike projection protrudes from the posterior pole of the body; this is followed by complete disintegration into small granules. If movements persist beyond ninety or 120 seconds, the reaction is incomplete; if they persist longer than five minutes, it is negative. In many cases of ectopic pregnancy, the cessation of movement requires up to two minutes. The reaction is positive also in case of abortion as long as there are still pregnancy products in the organism. Investigations on what substances are responsible for the action exerted by pregnancy urine on infusoria convinced the author that proteins, lipoids, carbohydrates and perhaps hormones play a part. The author emphasizes the simplicity and rapidity of the method and the fact that at least in ectopic pregnancy it has a greater degree of correctness than do other methods; he also points out that the test is still in the experimental stage.

Positive Aschheim-Zondek Reaction in Tuberculous Disease of Uterine Tubes.—In discussing the factors that are responsible for the production of the Aschheim-Zondek

reaction, von Latzka mentions various conditions other than pregnancy that cause an increase of the gonadotropic hormone in the urine. Among others he mentions tuberculous disease of the uterine tubes, pointing out that Wilson observed a positive Aschheim-Zondek reaction in such cases. He himself observed two cases that corroborate Wilson's observation. He describes these cases and shows that cases of threatening perforation, as the result of adhesions, of positive Aschheim-Zondek reaction and of menstrual disturbances may readily be mistaken for extra-uterine pregnancy. A definite differentiation is possible only by laparotomy.

Wiener klinische Wochenschrift, Vienna

50: 179-210 (Feb. 12) 1937

- Dyspnea in Patients with Heart Disease. E. Zak.—p. 179.
Action of Galvanic Current on Course of Excitation in Heart Muscle. O. Hochstadt and A. Leimdörfer.—p. 184.
Spontaneous Elimination of Gallstones. K. Büdinger.—p. 187.
*Treatment of Fracture of Spinous Processes. F. G. Schnek.—p. 191.
Epinephrine-Histamine Reaction as Functional Test of Sympathetic and Endocrine Disturbances. M. Breitmann.—p. 193.
Treatment of Bronchial Asthma with Insulin Shock. J. Wegierko.—p. 195.
Treatment of Adrenal Insufficiency. K. Hitzengerber.—p. 197.

Treatment of Fracture of Spinous Processes.—Schnek points out that avulsion of the spinous process of the seventh cervical vertebra or of the spinous processes of the neighboring vertebrae is relatively frequent in road and dam construction work, in certain types of agricultural work and in some sports. This type of fracture results usually from a sudden, jerking muscular traction. Only conservative methods of treatment are advisable. Surgical intervention is not required during the early or during the late stage. The pain in the surrounding musculature is due to the sensitivity of the site of fracture. The author recommends anesthetization by means of from 5 to 10 cc. of a 2 per cent solution of procaine hydrochloride. If after a few minutes the pain has disappeared, all movements are possible again but if, during the following days, the surrounding musculature still remains sensitive, he advises infiltration with a 0.5 per cent solution of procaine hydrochloride. The patients are usually able to work again after about six weeks. There is no permanent impairment.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

37: 155-376 (No. 146) 1936. Partial Index

- Innervation and Healing of Compound Fractures. N. I. Bunin and V. M. Okonevskiy.—p. 155.
Anaerobic Infection Following Injections of Various Medicinal Substances. D. A. Arapov.—p. 169.
*Perforating Gastroduodenal Ulcers. D. A. Lemberg.—p. 191.
Inflammatory and Suppurative Disorders of the Intestine. V. I. Mushkatin.—p. 202.
Malignant Tumors of the Thyroid. A. I. Sorkina and P. Ya. Esau.—p. 215.
*Symptoms and Pathogenesis of Ludwig's Angina. M. B. Fabrikant.—p. 241.

Perforating Gastroduodenal Ulcers.—According to Lemberg there were 233 cases of perforation of gastroduodenal ulcer in which operation was performed at the Emergency Institute of Leningrad from 1932 to 1935. There were 222 men and eleven women. In twenty-nine cases (12.4 per cent) there was no history of ulcer symptoms in the past or prior to the attack. Thirty-three (28.6 per cent) manifested exacerbation of the symptoms in the days preceding the perforation. Sudden onset of severe epigastric pain, absence of abdominal breathing, rigidity of the abdominal wall and pneumoperitoneum constituted the most reliable diagnostic signs. Treatment consisted of a simple suture of the perforation in two layers, the omentum being utilized to protect the suture line, and closure of the abdomen without drainage. When the perforation was located in the pylorus or in the duodenum, a gastro-enterostomy was added. The mortality was 16.7 per cent. The author is opposed to partial gastric resection on the ground that wide application of it would result in high mortality. He is not convinced that resection is the best form of treatment for every type of ulcer. The author believes that the fact that Yudin was able to show the low mortality of 9.8 per cent in 673 resections is due to selection of cases; otherwise it would be difficult to explain the same author's 53.4 per cent mortality from simple suture. He concludes that the palliative procedure of simple closure with

or without gastro-enterostomy is capable of saving many lives and of curing a fairly high proportion of cases. Patients with late ulcer symptoms following palliative procedure may be subjected to a medical regimen or to a resection under much more favorable conditions.

Ludwig's Angina.—According to Fabrikant, Ludwig's angina is not a specific clinical entity. It is due to the action of anaerobic micro-organisms. The infection spreads rapidly along the floor of the mouth to reach the retropharyngeal space. The infection is characterized by a rapid spread, woody infiltration without definite limitation, lack of involvement of the overlying skin, at least in the beginning, marked edema of the mucous membrane of the floor of the mouth, lifting the tongue upward and backward, and symptoms of general intoxication. The various submaxillary, submental, sublingual and retromaxillary abscesses, lymphadenitis and periadenitis are to be distinguished from Ludwig's angina by the fact that they break down early and form pus. In Ludwig's angina there is formed early in its course a dirty gray infiltration of the muscles with the formation of a small amount of ichorous fluid having a marked gangrenous odor and at times containing gas. Bacteriologic studies have revealed many organisms, such as staphylococci and hemolytic streptococci. The author believes that the anaerobes are the important organisms in the process. The most frequently found organism in their cases was *Bacillus perfringens*. Early recognition and immediate operation are essential if the patient is to be saved. The author recommends a transverse incision parallel to the jaw, division of the muscles, excision of gangrenous tissue and wide exposure down to the root of the tongue. The wound is dressed twice daily and is irrigated with hydrogen peroxide. The author treated eleven patients at the stomatologic institute of Kharkov with one fatality.

Hospitalstidende, Copenhagen

80: 1-28 (Jan. 5) 1937

Significance of Structural Analysis in Biology. L. Einarsen.—p. 1.
*Total Volvulus of Stomach: Case. E. Tølbøll.—p. 14.

Total Volvulus of Stomach.—Tølbøll believes that his case of torsion about both the longitudinal and the transverse axis in a woman, aged 43, is the first Danish case of total volvulus of the stomach. He says that in this disorder there is a change of position of the stomach with a twisting of about 180 degrees about the longitudinal or the transverse axis. In partial torsion only part of the stomach turns about the transverse axis; in total torsion there is a turning of fully 180 degrees about the longitudinal axis, which may be complicated by a secondary torsion about the transverse axis. The idiopathic form, always total, includes all cases without pathologic changes in the stomach, presumably because only the sound stomach can perform such marked shiftings in localization. In the symptomatic form, always partial, pathologic gastric or perigastric conditions are present. This form, far more frequent than the idiopathic, always affects the pyloric horizontal part of the stomach. While the pathologic changes often explain the mechanics of partial torsion, the origin of total volvulus is especially difficult to account for. Gastroparesis and hypermobility are regarded as predisposing factors. Diagnosis in total volvulus is difficult in spite of several characteristic signs—violent vomiting, vomited matter never mixed with bile or feculent, rapid cessation of vomiting followed by spitting up of regurgitating mucus from the esophagus, the patient's inability to take a particle of food, development of meteorism localized to the upper left part of the epigastrium and at first limited to this region, remarkably slight tenderness of the epigastric tumor in view of the violence of the disturbance, and finally cardiac obstruction making introduction of the stomach sound impossible. The last-named condition is of great significance if the presence of a foreign body in the esophagus is excluded but may fail in the milder cases without torsion about the transverse axis. Treatment, as soon as possible, is surgical. The symptoms in partial volvulus are less pronounced, but there are violent vomiting and intense pain in the epigastrium, which may disappear as suddenly as they set in, when the torsion ceases. Even though the danger passes for the time, omission of intervention is risky, as the prognosis in partial volvulus also is doubtful. Roentgen examination is as important and decisive in partial volvulus, in which

the diagnosis is hardly possible without its aid, as it is difficult and uncertain in total volvulus. Thirty-three cases of total volvulus were reported up to 1926. Of the thirty-four cases, including the author's personal case, necropsy was done in the ten cases in which operation was not performed. In six of the remaining cases death followed the operation and in eighteen there was recovery. Diagnosis was made before operation in five cases. Most cases occurred in adults, aged from 40 to 70, but two cases are recorded in children aged respectively 2 (Siegel) and 5 (Dujon) years.

Hygiea, Stockholm

99: 1-32 (Jan. 15) 1937

*Hematologic Study of Some Cases of Chronic Nephritis. N. G. Nordenson.—p. 1.

Chronic Nephritis.—Nordenson discusses eighteen cases of anemia in which all degrees were represented, from those with 4.26 million red blood corpuscles and a hemoglobin value of 82 per cent to grave cases of 1.44 million red blood corpuscles and a hemoglobin percentage of 29; it was usually of secondary type with index below 1. He says that no regenerative changes in the form of reticulosis appeared in the peripheral blood. In no case were there marked signs of degeneration in the red blood corpuscles. There was pronounced granulocytosis in all but one case. Intravital examination of the sternal bone marrow revealed elective injury of the erythropoiesis; the leukopoiesis was relatively intact. The percentual relation between the number of white blood corpuscles and the nucleated red blood corpuscles was reduced in almost all cases. While the erythrocytic elements normally constitute from 20 to 25 per cent of all cells in the sternal punctate, the average in this material was 13 per cent. The bone marrow was comparatively intact in two of the three cases in which treatment with iron was fairly successful and in the one in which a blood transfusion gave good reaction. The author concludes that the anemia in chronic nephritis depends on a reduced bone marrow function caused by a beginning aplasia of the erythropoietic system. Necropsy in eleven of the cases showed the normally active bone marrow to be unusually pale. Both anatomic and histologic changes indicated a lessened regenerative power. In a number of cases a certain parallel appeared between the renal and renal function on the one hand and the anemia on the other, and, on the whole, the longer the duration of the nephritis, the more marked was the anemia. To what extent other factors act in the genesis of the beginning aplasia of the erythropoietic system is uncertain.

Ugeskrift for Læger, Copenhagen

99: 55-98 (Jan. 21) 1937

*Some Sequels After Trauma of Cranium. E. Busch, E. Jerlang and K. E. Larsen.—p. 55.
Measles in Adults. V. Stærnøse and S. E. Kofoed.—p. 59.
*Weil's Disease: Three Cases. I. Knudsen.—p. 62.
Casuistic Report on Treatment of Pneumonia with Quinine Urethane Calcium. C. C. Jacobsen.—p. 64.

Sequels After Trauma of Cranium.—Busch and his associates discuss six posttraumatic syndromes; namely, epidural hematoma, depression fractures, traumatic arachnoiditis, circumscribed traumatic brain lesion, traumatic diploe-osteomyelitis and traumatic cephalalgia, each illustrated by a verified case from the neurosurgical clinic of the Rigshospital. The syndromes are typical with regard to etiology, pathologic anatomy and symptomatology and have a favorable prognosis provided the disorder is recognized and proper treatment is instituted, and so common and of such significance that they are of interest not only for the specialist but also for the practitioner, whose knowledge of these cases will in many instances decide the fate of the patient.

Weil's Disease.—Knudsen reports three cases of Weil's disease. The first two patients were farmers, aged 52 and 65, who after a heavy rain had spent two or three days in cleaning their blocked sewers, assumed to have been infected by rats. The third patient, aged 27, had for three weeks been working in water up to his waist, cleaning drainage ditches, and is regarded as supporting the theory of the primary occurrence of spirochetes in muddy water and their growth in it during summer weather.

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SIGNIFICANCE OF THE TUBERCULIN TEST

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MINNEAPOLIS

The incidence of positive reactors to tuberculin among the children and young adults is the best criterion of the tuberculosis problem in any community. It is far superior to mortality rates, since many persons who have tuberculosis die of other causes and the death certificates do not record the coexisting tuberculosis. One has only to consult postmortem records to obtain abundant evidence of this fact. Moreover, the morbidity rate does not approach the accuracy of the tuberculin test as a criterion of the tuberculosis problem, since, in approximately 80 per cent of patients, symptoms are a late manifestation and do not bring patients to physicians for diagnosis until the disease is well advanced. Indeed, there is an average period of approximately two and one-half years before symptoms appear during which the disease can be located by modern methods. In most cases there is a much longer period after the tuberculin test is positive before there is any evidence of disease on the x-ray film.

In 1926 we¹ published the results of tuberculin testing among school children in the city of Minneapolis, which showed that, of 2,118 tested, 47.33 per cent reacted positively. In the ten years that has passed since this work was done, much effort has been put forth and large sums of money have been spent to protect girls and boys against contamination with tubercle bacilli. While a good pasteurization ordinance was in effect in 1926, considerable milk that was not pasteurized was consumed by children, particularly when they were out of the city on vacations, and like instances. The pasteurization ordinance has continued in effect during the past ten years and in addition tuberculin testing of cattle has gone forward until the state of Minnesota has been accredited with reference to tuberculosis among cattle. Thus, contamination of children by the bovine type of tubercle bacillus, which results in a positive tuberculin reaction just as truly as

the human type, has practically disappeared. The number of beds in the county sanatorium has been increased to approximately 700. While there were 500 beds in this institution in 1926, an additional 200 has been added; this additional 200 is more beds for the tuberculous than exist in some whole states. The United States Veterans' Bureau has developed a hospital for 176 beds for the tuberculous. However, this institution admits patients from other parts of this state and from other states. Most of the general hospitals have opened their doors to tuberculous patients so that physicians can isolate and treat their private patients. In addition to the facilities for isolation, ambulatory artificial pneumothorax has definitely increased in popularity on the basis of results obtained, and many persons have had their lesions treated in this manner before they became spreaders of tubercle bacilli, while many others with tubercle bacilli in the sputum have had their lesions quickly controlled and the sputum rendered negative. Thus a vigorous effort has been put forth to isolate patients with tuberculosis in sanatoriums and hospitals and to treat them in the homes so as to prevent them from spreading bacilli to their human associates.

The most outstanding work is the epidemiology that has been practiced over this period of years. As soon as a case of clinical tuberculosis is reported, an earnest attempt is made, first, to find the source of the disease; that is, to find the person with tuberculosis who spread tubercle bacilli to the present patient. In fact, 26 per cent of the cases of clinical tuberculosis reported to the health department in 1932 were detected in this manner.² An attempt is made secondly to examine adequately all the immediate contacts who may have been contaminated by the present patient. When such contacts are not found to have tuberculosis in clinical form they are kept under close observation and examined periodically. This is done by private physicians for those who are financially able; for all others adequate clinics have been provided. It is not at all infrequent to find that the chest of a contact reacting positively to the tuberculin test and entirely negative to x-ray films and physical examination subsequently shows small shadows which make their appearance on the x-ray film long before symptoms or abnormal physical signs are present and long before tubercle bacilli are being eliminated in the sputum. Thus, many lesions which without such observation would become extensive and spread tubercle bacilli are brought under control without ever causing the patient any illness or being a menace to the individual's associates.

Another phase of the epidemiologic work which has been extremely valuable consists of the use of the tuberculin test among children, many of whom had no known contact with open cases of tuberculosis. By finding

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² From the Departments of Preventive Medicine and Internal Medicine, University of Minnesota, and the Lymanhurst Health Center.

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1. Harrington, F. E., and Myers, J. A.: Studies on Tuberculosis in Infancy and Childhood: X. Tuberculous Infection Among Minneapolis School Children as Revealed by the Intracutaneous Test, *Am. Rev. Tuberc.* 14: 454 (Oct.) 1926.

2. Myers, J. A.: The Epidemiology of Tuberculosis, *J. Outdoor Life* 31: 50, 1934.

the positive reactors and tracing back to the family and other close associates, many cases of open tuberculosis previously undiagnosed have been brought to light. In fact, in a special chest clinic at the Lymanhurst Health Center, provisions have been made whereby x-ray films and clinical examinations are made of the chest of indigent persons. Moreover, physicians who have patients who can pay them a small fee but cannot afford x-ray films of the chest are permitted to send such patients to this clinic for free x-ray work. Indeed, during the present year x-ray film examinations have been made of approximately 5,000 persons in this clinic.

In addition to this method of finding unsuspected cases, the school board passed an order in 1933 requiring all employees of the school system to be adequately examined for tuberculosis. Thirty-six hundred such employees were examined, sixty-eight of whom showed shadows on the x-ray film which required clinical examination and observation to determine whether they were cast by tuberculous lesions and if so whether they were in a progressive or communicable stage. At the time this work was reported,³ six employees were found to have tubercle bacilli in the sputum and, since, two others have become spreaders of tubercle bacilli. The remainder are still under observation. While this number of communicable cases of tuberculosis may seem small, it is not difficult to conceive of them spreading tubercle bacilli to large numbers of girls and boys in the school system, since it has been estimated that one patient with open tuberculosis may eliminate from thirty to forty million tubercle bacilli daily.

Moreover, a very fine educational program for physicians has been carried on during the past few years in which the department of health, the local medical society and the county tuberculosis association have cooperated. Tuberculin syringes were presented to each physician in the county and every two weeks tuberculin in a dilution of 1:1,000 is delivered free of charge to the office of each physician who desires to use it. Free tuberculin to physicians for testing is not a new idea. In 1893 a law was passed in Denmark which provided for the expenditure by the minister of the interior of \$13,500 annually for five years to provide free tuberculin for testing cattle.⁴ In our present program this has resulted in large numbers of tuberculin tests being administered by private physicians, whether engaged in special or general phases of medical practice, and many of the persons reacting positively to the test have had adequate subsequent examinations to determine whether tuberculosis is present in clinical form. This work by the private physicians has not only uncovered many previously unsuspected cases of tuberculosis but has also been of great educational value to the public, particularly with reference to the contagiousness of tuberculosis.

In Minneapolis, as in most cities, the work of controlling tuberculosis has of necessity been fragmentary. Not enough public health education has yet been possible to convince all persons of the value of periodic examinations for tuberculosis. Funds are not available to carry out an ideal program among the indigent, but it is obvious that, if the work which is already under way could be extended to every home and every individual and proper cooperation were afforded, all the

foci which are spreading tubercle bacilli could be quickly treated or isolated. The potential communicable cases could be kept under very close observation and in a relatively short time there would be no spreaders of tubercle bacilli.

Even though an ideal program has not been possible, we were convinced that much had been done to prevent the spread of tubercle bacilli and that the tuberculosis problem had been definitely decreased. To measure the effectiveness of the program in the past, we had at our command a method that would give us very definite information; namely, the tuberculin test.

Soon after Koch⁵ presented tuberculin in 1890 it was learned that the dose recommended by him both for diagnostic and for therapeutic work often resulted in severe and harmful reactions. He used the subcutaneous method of administration. However, when Pirquet⁶ and Mantoux⁷ perfected the epidermal and intradermal tests, the amount of tuberculin used by them was found to be without harm. They were convinced that tuberculin is specific as a diagnostic test and through its use made a revelation that could not have been made in any other manner. While it was true that pathologists had already observed tuberculous lesions in large numbers of persons who had died of other causes, the tuberculin test revealed the fact that a high percentage of apparently healthy girls and boys had been infected with tubercle bacilli by the age of 15 years. We often think of Pirquet and Mantoux as believing that tuberculous infection was almost universal in young adults throughout the world, but this is far from true. Indeed, regarding his own observations, Pirquet⁸ said:

This high percentage cannot be considered as being the figure for all children, as very many cases are admitted into the hospitals because of tuberculosis.

Again he said:

The percentage of infected (reacting) children is a particularly high one in my table. In other cities it will hardly be as high because tuberculosis is notoriously prevalent in Vienna. Furthermore, all my patients belonged to the poorer classes. My statistics, therefore, lose in some degree their general value. Our children are infected at a much earlier age on account of the prevalence of tuberculosis among their parents. It is necessary to make similar studies in every city in order to ascertain the frequency of tuberculosis in general.

Thus Pirquet recommended the tuberculin test as the method of determining the incidence of contamination with tubercle bacilli in various parts of the world. Since the time of Pirquet and Mantoux the tuberculin test has been used very extensively, and at present it is recognized as a test having no superior in the diagnosis of any disease. Careful experimental studies and close observation on human beings have revealed the fact that when tubercle bacilli grow in the human body during the early stage of tubercle formation their protein sensitizes the tissues of the body. While microscopic evidence of sensitiveness of tuberculo-protein can be detected a short time after tubercle bacilli are introduced into the animal body,⁹ it is usually a period of approximately two or more weeks before the tissues are so sensitized as to react positively when tuberculo-protein is brought in contact with the skin through an

3. Harrington, F. E.; Myers, J. A. and Levine, Ida: Tuberculosis Among Employees of the Minneapolis Schools, J. A. M. A. 104: 1869 (May 25) 1935.

4. Bang, B. L. E.: Tuberculosis of Cattle, Appendix. Pearson, Leonard, and Ravenel, M. P.: Tuberculosis of Cattle and the Pennsylvania Plan for Its Repression, Bull. 75, Dept. of Agriculture, Commonwealth of Pennsylvania, 1901, p. 247.

5. Koch, Robert: The Etiology of Tuberculosis, Berlin. Klin. Wchnschr. 19: 221, 1882.

6. Pirquet, Clemens: Demonstration zur Tuberkulindignose durch Hautimpfung, Berlin. klin. Wchnschr. 44: 699, 1907.

7. Mantoux, Charles: Intradermo-reactions de la tuberculine, Compt. rend. Acad. d. sc. 149: 355, 1908.

8. Pirquet, Clemens: Frequency of Tuberculosis in Childhood, J. A. M. A. 52: 675 (Feb. 27) 1909.

9. Dienes, Louis, and Mallory, T. B.: Histological Studies of Hyper-sensitive Reactions, Am. J. Path. 8: 69 (Nov.) 1932.

abrasion or is introduced hypodermically within the layers of the skin. In the human body, where the time of exposure is quite accurately determined, it requires from three to seven weeks¹⁰ for the tissues to become so sensitized as to give such a reaction.

There is nothing ordinarily taken into the human or animal body which causes sensitization of the tissues to tuberculo-protein except tubercle bacilli themselves which are resulting in or have resulted in tubercle formation.¹¹ It is possible to produce such sensitization artificially in the laboratory by the use of dead tubercle bacilli or the protein content of tubercle bacilli. However, this is usually of short duration because it is eliminated and not further produced, whereas that which develops through tubercle formation in the human body is usually thought to be of long duration because of continuous production from living bacilli. Since tubercle bacilli in tubercles and the lymph nodes of the primary complex often remain alive over long periods of time, they actually constitute manufacturing plants of tuberculo-protein in such quantities as to keep up the sensitization. Evidence has accrued to show that in some persons who are apparently well and who have previously reacted positively to the tuberculin test the sensitiveness of the tissues becomes so decreased that it is impossible to produce a reaction even with large doses of tuberculin. How frequently this occurs is not known. It is a possibility that the tubercle bacilli which result in the tubercles of first infection may be destroyed, after which there is no longer a source of tuberculo-protein in the body and the tissues completely lose their sensitiveness. It has long been known that in overwhelming acute tuberculous processes, such as pneumonia, meningitis and miliary disease, the tissues are often desensitized so that it is impossible to obtain a positive reaction from the tuberculin test except when large test doses are used. Again, in chronic forms of tuberculosis during the terminal stage there may be enough tuberculo-protein produced and liberated to desensitize the tissues. Occasionally one sees a person with chronic tuberculosis who is by no means in the terminal stage and yet the tissues fail to react to the tuberculin test. Apparently the number of such persons is small, and no one has made sufficiently long observations to determine whether in the same individuals there was at an earlier time definite sensitization of the tissues. It is probable that such cases may have become desensitized through the tuberculo-protein produced in their own bodies. These changes in human beings are not essentially different from those which the veterinarians observed in the nineties. Indeed, Bang⁴ of Denmark, in writing of the disadvantages of tuberculin in the testing of cattle said:

In the first place the violence of reaction has no constant relation to the development of the disease. Farmers often believe the cow reacting violently to be extremely tuberculous and the one reacting feebly to be comparatively sound. The case is rather the reverse, but this is not constant either. Next, tuberculin is not absolutely to be relied upon. To be sure you will very seldom be mistaken in the conclusion that a cow which has shown an evident reaction is indeed tuberculous. I, for my part, know only three or four cases in which I could find no tuberculous deposits in such an animal, and in these cases the fault may be mine and not that of tuberculin, as it is impossible to examine every part of the body of a slaughtered animal. The tubercles may have been hidden in an unusual place, or

they may have been so small or so fresh that they could not be discovered. This case then is a very rare one, though the unskilled observer, for instance, the butcher, may believe it to be a frequent one. Moreover, it must be considered that it would not be a disaster even if a sound animal should for once be considered tuberculous. Far more frequent is the case that an animal which has not reacted is proved by slaughtering to suffer from tuberculosis. But usually this has not the practical importance one would suppose it to have, as in the great majority of cases the deposits in question are very small, very old or greatly calcified, indicating that the process has become stationary. Experience teaches that such small deposits usually keep quite unchanged for a series of years and may even at length be healed. In fact, animals which have this form of tuberculosis will be quite harmless to their associates as they do not excrete tubercle bacilli. But there are also cases in which an animal suffering from far advanced and very contagious tuberculosis does not react to tuberculin. This is a very provoking fact; luckily, however, it happens but seldom, and we must be taught by it not to rely on tuberculin alone but to have recourse to clinical examination which will usually enable us to detect tuberculosis in such advanced forms. In the third case, tuberculin has the imperfection that reiterated reactions will not rarely call forth a temporary insusceptibility to the substance so that tuberculous animals will at length cease reacting to a new injection. This circumstance may occasion fraud in dealing in cattle, but as the fact is very inconstant the imposture will by no means always be successful. . . . But the imperfections of tuberculin mentioned here are eclipsed by its good qualities. According to my experience, which is founded on a very great number of autopsies, it is in 10 per cent of the cases at most that tuberculin will be at fault and it is only in a very small percentage of these cases that the fault will be of consequence. Tuberculin, therefore, in spite of its imperfections, marks an immense advance in the diagnosis of tuberculosis. By its help we are able to discover a great number of cases of tuberculosis which were formerly absolutely concealed. Until something still better has been found, we must consider it to be our best weapon in the struggle against tuberculosis of cattle.

Thus those who believe that the finding of the occasional person with tuberculosis who does not react positively to tuberculin is a new discovery may be surprised to learn that this fact was known to the veterinarians forty years ago. Moreover, one may look on the occasional failure on the part of tuberculin as insignificant in a control program just as the veterinarian does.

The tuberculin test is extremely valuable in determining who in a family or in a community has foci of tubercle bacilli in the body. A positive reaction is diagnostic of the first infection type (primary complex) somewhere in the body. This type rarely causes significant illness but is always the forerunner of reinfection destructive forms of disease, both acute and chronic, when this type develops. The tuberculin test, therefore, serves as a screen to select those who have been infected through direct or indirect exposure and who should be carefully examined and kept under close observation thereafter for the development of clinical disease.

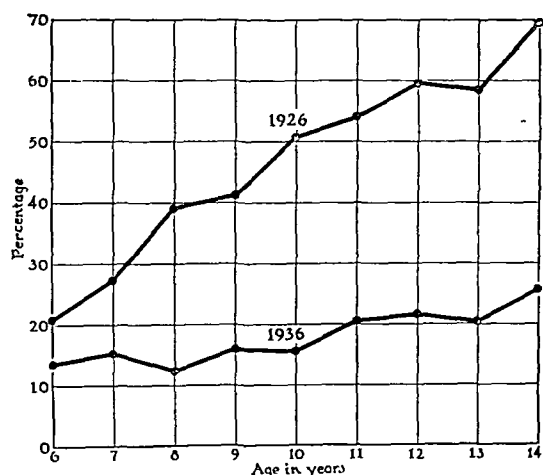
During the months of April and May 1936, we tested 4,549 children in the schools in which testing had been done ten years ago. There has been a sharp decrease in the percentage of children reacting positively to the test, as shown in the accompanying chart, indicating that the environment of the present school children has been very much better so far as exposure to tubercle bacilli is concerned than was that of the children in the same age period ten years ago, when 47.33 per cent reacted positively. In the accompanying table the positive reactors have been grouped according to age. To expect another sharp decrease in the next ten years would not be illusory, provided the present program of preventing contact of children with open cases of tuberculosis can be continued and extended.

10. Wallgren, Arvid: Primary Pulmonary Tuberculosis in Childhood. *Am. J. Dis. Child.* 49: 1105 (May) 1935.

11. Krause, A. K.: Human Resistance to Tuberculosis at Various Ages of Life: Appendix A. Remarks on Conditions Necessary to Arouse the Allergic State and on Immunity Through Fixation of Bacteria. *Am. Rev. Tuberc.* 11: 303 (June) 1925.

In many parts of the country, the number of positive reactors among children and young adults is decreasing. In these places, programs similar to that employed in Minneapolis have been in effect so as to reduce definitely the number of communicable cases of tuberculosis through isolation, treatment and other measures, thus creating an environment for children with far fewer tubercle bacilli than that of former years. For example, in Detroit ¹² in 1930, of 5,044 children examined, 54 per cent reacted positively while in 1935, of 5,504 children examined, 26 per cent reacted positively. While the rate of decrease in positive reactors apparently has been rapid, it should be accelerated, as the number of communicable cases of tuberculosis in any community is decreased through serious effort to locate and render their disease noncommunicable or to isolate them. Obviously, the lower the incidence of tuberculous infection in any community, the more valuable the tuberculin test; likewise, the problem of examining and keeping under close observation all the positive reactors becomes a physical possibility.

The tuberculin test is easily administered and the cost is small, but other phases of the examination, such as



Percentages of the children acting positively to the test in 1926 and 1936.

making of x-ray films, are more expensive. Therefore, with relatively small expense and in a short time through the tuberculin test, one can select those who need further examination. For example, if in a given community 15 per cent of the children and young adults react positively to the tuberculin test, one immediately eliminates the 85 per cent who at that time do not need any further examination for tuberculosis.

Some workers have found more positive reactions with old tuberculin, while others have reported more with purified protein derivative. The recent work of Plunkett ¹³ showed that when the larger doses of the two preparations are employed simultaneously at different sites on the same individuals there is essentially no difference in the percentage of positive reactors. The potency of old tuberculin from various drug houses varies considerably. This is a rather serious objection. The chief advantage of purified protein derivative is that it is standardized, so that its potency is the same wherever it is used. This, of course, insures more uniform results than when old tuberculin is used. The only objection to purified protein derivative is its high cost. In our present study we employed old tuberculin

secured from the Saranac Laboratories, since this tuberculin had been used in our study of a decade ago.

The present method of administering the tuberculin test in two doses is objected to by many workers, since all who do not react to 0.01 mg. of old tuberculin or the first dose of purified protein derivative should have a second dose consisting of a full milligram. For example, if tests are to be made on 100,000 children in a community where only 10 per cent react positively to the first dose, 90,000 must be retested. In short, the expense and time of testing is nearly doubled. In our survey we employed an initial dose of 0.1 mg. and retested all the negative reactors with 1 mg. While each of us was able to administer from 300 to 500 tests in an hour, still much time could have been saved if a single test dose had been used. Many workers use 0.1 mg. of old tuberculin as the first and final dose; a few use a full milligram as the only test dose. Long ¹⁴ and his co-workers are about to present a single test dose of purified protein derivative, which should greatly facilitate tuberculin testing in this country.

Some physicians prefer other methods of administration than the intracutaneous, and also some persons object to the use of a hypodermic needle. For example, Chadwick, Pope and their co-workers use the epidermal method of Pirquet with excellent results. Slater, ¹⁵ by carefully administering tuberculin by the epidermal method on one arm and by the intracutaneous method of Mantoux on the other arm, finds a difference in positive reactions of only 1 per cent in favor of the intracutaneous method. However, in the hands of less experienced workers a larger discrepancy is usually reported. For those who even object to the scarification of the skin necessary for the epidermal test, a modification of the percutaneous test described by Lovett ¹⁶ and the tape test by Wolff ¹⁷ are valuable. Indeed these tests, when carefully administered, closely approximate in accuracy the intracutaneous test. However, their administration is slightly more time consuming.

The specificity of the tuberculin test has been demonstrated on such a large scale in animals that it can no longer be questioned. When Pearson and Cotton began using the tuberculin test to detect tuberculosis in cattle in 1891, they were convinced of its specificity. Although for the next two or three decades much opposition was voiced, those who were convinced of its specificity brought forth irrefutable evidence. For example, in some places 92 per cent of the cattle reacting positively to the test were found at postmortem examination to have macroscopic tuberculous lesions. In political divisions where tuberculin testing of the cattle herds was repeated periodically, the time arrived when less than 50 per cent of those reacting positively showed macroscopic lesions at postmortem examination. Another great controversy was initiated by the opponents of the tuberculin test on the ground that more than 50 per cent of the animals slaughtered did not show lesions and therefore did not have tuberculosis, whereupon the proponents called attention to the fact that tuberculous lesions begin their development in a microscopic way and that the test is so delicate that even such lesions are detected by it. They were simply catching up with tuberculosis; that is, they were diagnosing it before it could be seen with the naked eye. It was then their

12. Douglas, B. H.: Annual Report, 1935, Tuberculosis Service, Department of Health, Detroit, Michigan.
13. Plunkett, R. E., and Siegal, William: Comparative Study of O. T. and P. P. D., Nat. Tuberc. A. Tr., 1936.

14. Long, E. R.: Personal communication to the authors.
15. Slater, S. A., and Jordan, Kathleen: A Comparative Study of the Pirquet and Mantoux Tuberculin Tests in School Children, *Am. Rev. Tuberc.* 25: 218 (Feb.) 1932.
16. Lovett, B. R.: The Percutaneous Tuberculin Reaction, *Am. J. Dis. Child.* 27: 918 (May) 1929.
17. Wolff, Ernst: A Tape Test with Tuberculin Ointment, *Am. Rev. Tuberc.* 27: 308 (March) 1933.

aim to reach the time when all tuberculosis among cattle would be diagnosed while the lesions were still microscopic and long before those animals with such lesions could spread their bacilli to others. They have now reached the ultimate goal; namely, complete eradication of tuberculosis from large numbers of herds and from all the herds in a few entire counties. All that remains is to use the same method that has led to this goal in the remaining parts of the country and tuberculosis will be completely eradicated from our animal herds. Indeed, by the close of the year 1937 all states will be accredited, with the possible exceptions of South Dakota and California. This is the greatest revelation of all time with regard to tuberculosis control, and it is one of the revelations of the tuberculin test. Without this specific test it would not have been possible to eradicate tuberculosis from the animal herds.

this disease passes through many phases and stages from the time the neutrophil phagocytoses the first tubercle bacillus until the disease takes the life of the individual. Unfortunately, it was not considered that a person had tuberculosis until he was ill, when in reality the disease had existed since the tubercle bacilli were first focalized by the neutrophils. About two years ago a committee of the Minnesota Trudeau Medical Society strongly recommended that all persons who react positively to tuberculin be reported to the health department. The society rejected the report and similar action has been taken against such committee reports in other states. However, in Minneapolis the commissioner of health strongly encourages physicians to report all positive tuberculin reactors even though the disease cannot be located by present methods of examination. Such reports are of great help to the health

Positive Reactors Grouped According to Age

Age	Sex	Number Tested	Positive 1:1,000	Negative 1:1,000 Positive 1:100	Positive 1:1,000 or 1:100	Total Number of Complete Tests	Total Number Positive
5.....	Male	31	4 (12.9)	1 (3.2)	5 (16.1)	63	11 (17.5)
	Female	32	5 (12.5)	2 (6.3)	6 (18.8)		
6.....	Male	137	5 (3.6)	11 (8.0)	16 (11.7)	274	37 (13.5)
	Female	137	9 (6.6)	12 (8.0)	21 (15.3)		
7.....	Male	233	15 (6.4)	15 (6.4)	30 (12.8)	473	72 (15.2)
	Female	240	16 (6.7)	26 (10.8)	42 (17.5)		
8.....	Male	251	16 (6.4)	15 (6.0)	21 (12.4)	524	65 (12.4)
	Female	273	15 (5.5)	19 (7.0)	34 (12.5)		
9.....	Male	288	23 (8.0)	29 (10.1)	52 (18.1)	607	97 (16.0)
	Female	319	24 (7.5)	21 (6.6)	45 (14.1)		
10.....	Male	300	16 (5.3)	28 (9.3)	44 (14.7)	578	91 (15.7)
	Female	278	18 (6.5)	29 (10.4)	47 (16.9)		
11.....	Male	303	35 (11.6)	39 (12.9)	74 (24.4)	610	126 (20.7)
	Female	307	34 (11.1)	18 (5.9)	52 (16.9)		
12.....	Male	284	25 (8.8)	33 (11.6)	58 (20.4)	574	125 (21.8)
	Female	290	38 (13.1)	29 (10.0)	67 (23.1)		
13.....	Male	276	21 (7.6)	32 (11.5)	53 (19.1)	521	107 (20.5)
	Female	245	32 (13.1)	22 (9.0)	54 (22.0)		
14.....	Male	136	19 (14.0)	16 (11.8)	35 (25.7)	250	64 (25.6)
	Female	114	15 (13.2)	14 (12.3)	29 (25.4)		
15.....	Male	35	6 (17.1)	4 (11.4)	10 (28.6)	53	15 (28.3)
	Female	18	3 (16.7)	2 (11.1)	5 (27.8)		
16.....	Male	13	0	1 (7.7)	1 (7.7)	20	3 (15.0)
	Female	7	2 (28.6)	0	2 (28.6)		
17.....	Male	0	0	0	0	1	0
	Female	1	0	0	0		
18.....	Male	0	0	0	0	1	0
	Female	1	0	0	0		
Total number tested...	Male	2,287	185 (8.1)	224 (9.8)	409 (17.9)	4,549	813 (17.9)
	Female	2,262	210 (9.3)	194 (8.6)	404 (17.9)		
		4,549	395 (8.7)	418 (9.2)	813 (17.9)		

The tuberculin test is no less specific for human beings than it is for cattle. Indeed, the veterinarian uses tuberculin made from the human type of tubercle bacilli for testing cattle just as we do for testing human beings.

Through the tuberculin test and slaughter of the positive reactors, the veterinarian quickly recognized a long latent stage in tuberculosis but did not complicate the situation by calling it infection rather than disease. The following quotation from the report of a committee headed by Dr. John R. Mohler¹⁸ is significant: "When the tuberculin test is applied to cattle for any purpose it should be clearly understood that the reacting animals are to be regarded in every sense of the word as recognized cases of tuberculosis, which under an obligatory notification law must be reported at once to the proper authority." In human medicine, one must recognize the fact that a positive tuberculin reaction indicates the presence of tuberculosis somewhere in the body. For too long the fact has been overlooked that

officer, who is often able to assist the private physician in finding sources of exposure. A list of positive tuberculin reactors is also valuable because they are potential cases of clinical tuberculosis and should be examined periodically.

Although the reporting of persons who do not show any evidence of tuberculosis except the positive tuberculin reaction is strongly opposed at the present time, it must eventually be considered as an important part of a tuberculosis control program. Here again we are only recommending what the veterinarian has found so effective in eradicating tuberculosis from the cattle herds.

Through the tuberculin test and slaughter of the positive reactors, the veterinarian learned that, once tubercle bacilli gain lodgment in the animal's body, an actual or potentially serious condition exists. Of this Pearson and Ravenel⁴ say:

It is a disease that runs a chronic course with but little tendency to heal, although it is sometimes latent for a long period. Even if the animal recovers, it is not thereby rendered immune to another attack as is the case with hog cholera, anthrax, influenza and numerous other diseases. Therefore,

18. Mohler, J. R.: Report of Committee on Location of Tuberculosis in Cattle, Appendix. Moore, Veranus: Bovine Tuberculosis and Its Control, Ithaca, N. Y., Carpenter & Co., 1913, p. 121.

when tuberculosis is introduced into a herd it is not self limiting and its tendency is constantly to spread and with a degree of rapidity that depends largely upon the sanitary conditions to which the herd is subjected.

Again they say:

After gaining a foothold in the body and after one or more tubercles are formed, the bacteria may invade other regions by passing through tissue, by being distributed mechanically in cavities or in canals or by being transported in currents of lymph or in the blood.

Moore¹⁸ says:

It is not known how long the lesions may lie dormant, but we have individuals where they sprang into activity after three and one-half years, and also a case where an apparently healed, calcified tubercle contained living virulent tubercle bacteria three years after the cow ceased to react.

In the human body one can no longer look lightly on the primary tuberculosis complex when its presence is indicated by the positive tuberculin reaction.

The next step in our present survey consisted of making x-ray films of the chests of the children who reacted positively to the tuberculin test. Although the fact is well established that the positive tuberculin reaction establishes the presence of a primary complex somewhere in the body, the lesions that constitute this complex usually are not of clinical significance except in a few cases for a brief period of time as allergy appears, when there may be an elevation of temperature. Subsequent to this period there are no clinical manifestations. The x-ray film of the chest fails to reveal the location of the primary complex in 75 per cent or more. Moreover, knowing the location of the complex is of no material assistance to the clinician.

We no longer recommend making x-ray films of the chests of children except for the detection of developing reinfection or the clinical type of tuberculous lesions. Since this type of lesion is found in the chests of children who are positive tuberculin reactors only once in 2,000 or 3,000 examinations, it is hardly worth while to make x-ray films of the chests of children, since there are other age periods in life when films reveal so much more evidence of clinical tuberculosis. For example, during the high school age period one may expect to find evidence of developing clinical disease in one in every 500 to 800 positive reactors. In the college age period a larger number of positive reactors is found to have developing or well established clinical disease, whereas in the twenties and thirties one may find a case of clinical tuberculosis in every 100 or 200 positive reactors.

The form of tuberculosis that causes illness, requires treatment and disseminates tubercle bacilli to other human beings is largely a disease of adult life. Our chief reason for making x-ray films of the chests of the positive reactors in this study was to obtain confirmatory evidence concerning the absence of clinical disease in the chests of children which we have previously observed in other groups.

Considerable controversy has arisen regarding the necessity for treating children who react positively to the tuberculin test whether or not the primary complex is located by further phases of the examination. However, sufficient evidence is now available to justify the statement that active treatment is not necessary for such children. They do just as well in their homes as they do in institutions, and they do just as well in school and other usual activities as they do lying in bed at home.¹⁹

While children with the first infection type of tuberculosis in the inflammatory stage may occasionally have tubercle bacilli revealed in the gastric contents, they rarely cough or expectorate; therefore they are not public health menaces. Active treatment was not recommended for a single child found in this study to react positively to tuberculin, because our observation with all forms of treatment on similar groups of children over a period of fifteen years has conclusively proved that treatment is of no avail.

This does not mean that our survey was of no value, for finding the positive reactors gave us two very definite leads that are of great importance in the tuberculosis control program: First, we learned from each positive reaction that the child had been exposed to a communicable case of tuberculosis. While it is true that a visit to a neighbor or a distant relative may suffice to set up a focus of tuberculosis in the child's body, it is also true that some positive reactors are in close association with persons who have communicable tuberculosis which may never have been diagnosed. Therefore, one of the prime objects of this survey was to seek the source responsible for the disease in each of these children and to stop any further exposure by isolating or treating these persons. This is being done as fast as possible.

Second, close observation is important for every child who reacts positively to the tuberculin test as soon as young adult life is reached, since the fact has been well established that in a good many such children clinical disease develops during adult life. Indeed, in a group of children (average age about 8 years) reacting positively to the tuberculin test in 1921-1922, we have found that approximately 10 per cent have already developed clinical tuberculosis.²⁰ In other groups reacting positively in each succeeding year, corresponding percentages have developed a manifest reinfection type of lesion.

Therefore, all these children who have reached the period of adolescence and all others as soon as they approach this period should have annual x-ray examinations of their chests. In this age period and thereafter the x-ray film is indispensable in the tuberculosis control program. When reinfection or clinical pulmonary tuberculosis is found to be developing, treatment should be instituted at once, for this is the form of disease that causes most of the serious illness and death from tuberculosis. By such a program of observation, practically all children who develop clinical disease will have it detected before symptoms are present and before it has become communicable. This is the time when tuberculosis can be treated most successfully in a very short time, and usually treatment will prevent the individual from falling ill or from becoming a disseminator of tubercle bacilli. Here collapse therapy, particularly artificial pneumothorax, is the most effective form of treatment and often can be instituted and maintained on an ambulatory basis.²¹ When such a program of breaking contact is carried to its logical conclusion, tuberculosis must rapidly disappear.

In the whole educational campaign against tuberculosis in recent years, nothing has been so valuable or so significant as bringing to the attention of the public the fact that this disease is contagious. Indeed, it was

19. Myers, J. A.; Harrington, F. E.; Stewart, C. A., and Wulff, Marjorie. First Infection Type Tuberculosis, *Am. Rev. Tuberc.* 32: 631 (Dec.) 1935.

20. Myers, J. A., and Harrington, F. E.: The Effect of Initial Tuberculous Infection on Subsequent Tuberculous Lesions, *J. A. M. A.* 103: 1530 (Nov. 17) 1934.

21. Myers, J. A.: Collapse Therapy and the Ambulatory Patient, *J. Thoracic Surg.* 2: 175 (Dec.) 1933; Artificial Pneumothorax, Particular Reference to the Ambulatory Patient, *ibid.*, to be published.

the veterinarians' early recognition of this fact that added much to the success of their work. Moore¹⁸ says: "Tuberculosis has gradually grown into many herds of dairy cattle. It should be guided in such a way that it will grow out. The secret of accomplishing this is to prevent the spread of tubercle bacteria from the present infected cattle so that with the disappearance of the animals now infected this destructive disease will be no more." In our epidemiologic work we are practicing the veterinarian's method of finding cases of tuberculosis and breaking contact with others.

The Bang method of control provided that all calves from cows reacting positively to the tuberculin test should be removed immediately after birth and fed on milk that had been heated or milk from cows that did not react positively to the test. When these calves reached the age of about 4 months they were tested again and periodically thereafter. Throughout the remainder of their lives they were kept away from other animals reacting positively to the tuberculin test. This is essentially the same procedure that Grancher, Bernard, Hess and many others in more recent times have employed for infants. Where this procedure has been practiced even in a very incomplete manner there has been a sharp reduction in mortality, morbidity and the development of primary complexes from tuberculosis. In fact, Boynton²² has pointed out that in the state of Minnesota the mortality from tuberculosis in infants decreased 88 per cent from 1916 to 1933.

We know all that is necessary in order to control tuberculosis in the human family, and the method now in use has been proved to be sound. If this method is employed everywhere no immunizing agent will be needed. In fact, to the present time no satisfactory immunizing agent has been developed. The veterinarians have made numerous attempts to immunize cattle against tuberculosis. As early as 1913, Moore¹⁸ said:

It is impossible in a work of this kind to enter into a discussion of the theories of immunity, but the fact that individuals who have suffered an attack of tuberculosis and have recovered at least temporarily are not protected against a subsequent attack or recurrence does not argue in favor of a protective vaccination. Success may be attained but at present there seems to be no method that can be recommended to the cattle owner for successfully vaccinating or immunizing his animals against tuberculosis.

Since Moore's statement, other attempts have been made, including such preparations as Calmette's vaccine, BCG. After sufficient trial, however, the veterinarians of America have not adopted BCG as a satisfactory method of prevention. They have had a better opportunity to observe the effects of BCG on cattle than we could ever hope to have on human beings. The veterinarian's experience and his record of success in controlling tuberculosis, which is the best of any group of workers of any time, should discourage every physician from administering BCG to children. Certainly a preparation that the veterinarian considers unsafe and ineffective for cattle should not be used in an experimental way on the children of the United States. To prove the efficaciousness of an immunizing agent for tuberculosis in the human body would require decades; in fact, before this can be proved, our present method should reduce the disease in the human family to one of minor importance.

NONDRAINAGE OF THE PERITONEAL CAVITY IN APPENDICEAL PERITONITIS

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Since Mikulicz¹ expressed the opinion that a gangrenous appendix may be removed and the peritoneal cavity closed without the introduction of a drain, attempts have been made by various surgeons throughout the world to use this method in certain cases. Although since then the subject of drainage or non-drainage of the peritoneal cavity in the presence of peritonitis has been extensively studied, there seems to be no uniform opinion regarding it. Some state that it is best to drain the infected abdominal cavity, while others believe that drainage prolongs hospitalization, promotes the development of ileus, favors the development of ventral hernia and of intestinal adhesions and is in general contraindicated.

Even the proponents of nondrainage are somewhat hazy with respect to indications and contraindications.

With the introduction of asepsis and the consequent popularization of surgical treatment in general, there gradually developed the idea that in the presence of peritonitis, now known to be most frequently the result of an extension of the inflammation to the peritoneum from the acutely inflamed appendix, best results could be obtained by removal of the focus of infection, be it a ruptured appendix, a ruptured cyst or a perforated bowel, and a consequent introduction of a drain, consisting of a rubber tube, sterile gauze, a Penrose drain and the like. The idea of drainage is based on the prevalent but erroneous belief that the absorption power of the peritoneum is, in comparison with other serous membranes, very great, and the mechanical release, through the drain, of the infectious substances is bound to speed up recovery and to facilitate healing. This, in brief, is the rationale of "draining."

Numerous objections can be given to refute this theory. Not going into an extensive discussion of the anatomy and physiology of the peritoneum, I may briefly state that the absorption of the peritoneum is not greater than that of any other serous membrane, that it occurs chiefly along the region lining the diaphragm, and that one must bear in mind that it is physically impossible to drain the entire peritoneal cavity by means of the usual type of drain employed for this purpose.

Poynter,² who made a thorough study of the problem of peritoneal absorption, came to the conclusion that drainage for peritonitis is illogical in that absorption has contaminated the general circulation long before any operative procedure can be instituted and that the process can be little, if at all, influenced by so-called surgical drainage.

It is a physical impossibility to drain the entire peritoneal cavity even by multiple incisions and drains. It can be proved experimentally that from twenty-four to forty-eight hours after the drain is introduced the intestinal loops or omentum are widely agglutinated around the drain and that the actual area of drainage corresponds roughly to that of the surface area of the drain itself.

22. Boynton, Ruth E.: The Declining Death Rate from Tuberculosis in Children: An Analysis of Tuberculosis Deaths in Minnesota from 1915 to 1932. *J. A. M. A.* 104: 1875 (May 25) 1935.

1. Mikulicz, J.: *Samml. Klin. Vortr.*, 1885, No. 262.

2. Poynter, C. W. M.: *Nebraska M. J.* 14: 362 (Sept.) 1929.

Miller,³ who made a thorough study of the subject and also reviewed the literature, came to the conclusion that drainage increases postoperative discomfort, prolongs convalescence and is in many cases the cause of secondary operations.

Stanley Raw advocates closing the abdomen in all cases in which the appendix has been removed. He has employed this method since 1921 and finds that there is less suppuration without drainage than with it.

Banks favors nondrainage in all cases of spreading and diffuse peritonitis whenever it is possible to remove the cause.

Marchini⁴ reported 301 cases of localized peritonitis; drainage was used in 184, with nine deaths; drainage was omitted in 117, with two deaths; there were 142 cases of diffuse peritonitis; drainage was used in 101, with thirty-one deaths; drainage was omitted in forty-one, with seven deaths. These figures show, therefore, that of the 158 patients with localized or diffuse peritonitis, without drainage, nine died, giving a mortality slightly less than 6 per cent, while of the 285 patients with drainage, forty died, giving a mortality of a little over 14 per cent.

Shipley⁵ and Bailey, who recently made a study of the subject of treatment of appendicitis with peritonitis, came to the following conclusions:

1. Exclusive of strangulated hernia, peritonitis is the chief cause of intestinal obstruction.

2. In the majority of instances it is not the peritonitis *per se* that causes the adhesions and bands leading to obstruction, but the reaction of the peritoneum to the drain.

3. Drainage material, especially in the lower abdomen, often causes widespread adhesions between loops of intestine, mesentery, omentum, pelvic organs and abdominal wall.

4. Drains are soon sealed off and do not drain any considerable portion of the peritoneum.

5. Paralytic ileus seriously obscures the clinical picture when drains are left in the abdomen.

6. Pelvic drains increase the incidence of postoperative retention of urine.

7. Drained abdomens are most likely to develop troublesome, painful, or disabling late postoperative adhesions.

8. Late intestinal obstruction is more likely to occur in drained than in undrained abdomens.

9. None of these considerations should carry weight if the risk of life is increased by closure without drainage.

10. Evidence is accumulated that the introduction of drains into the abdomen in the treatment of early peritonitis may be dispensed with, without increase in the death rate.

In order to ascertain the opinion of the leading American surgeons regarding the question of drainage or nondrainage of the peritoneal cavity in appendiceal peritonitis, a number of questionnaires of the following type were sent to the leading surgeons and surgical clinics of America:

1. Do you use drainage of the peritoneal cavity in operative cases of appendiceal peritonitis as a routine measure?

2. If "yes," do you concede exceptions from this routine, and in which cases?

3. If "no," in which cases do you use drainage?

4. What do you consider the advantages of drainage, and what do you consider the disadvantages?

5. What do you consider as the advantages of nondrainage, and what are the disadvantages?

6. Remarks.

A study of the replies shows that the first question, "Do you use drainage of the peritoneal cavity in opera-

tive cases of appendiceal peritonitis as a routine measure," brought twenty-five clear-cut negative answers, seven definitely positive replies, and seven answers with reservations; i. e., the problem was discussed in general and reasons were given for "drainage" or "nondrainage" in certain cases. These replies are unusually significant in that they represent a cross section of the opinion of the leading surgeons of the country. We are dealing here, therefore, not with theoretical considerations but with actual realities. In each case the use of drainage or nondrainage is based on actual clinical results which dictate one or the other method of procedure.

As further seen from the replies to the questionnaire, the grounds given by the majority of surgeons for nondrainage are essentially as follows:

1. It is doubted whether drainage of the peritoneal cavity as a whole can actually be obtained, since any drainage is walled off within a few hours.

2. The drain acts as a foreign body, increases pain, prolongs convalescence, favors the development of postoperative ventral hernia and increases the incidence of postoperative intestinal obstruction, or mechanical ileus, by increasing the tendency to the development of bands and adhesions.

3. Nondrainage shortens convalescence, eliminates the possible reaction to a foreign body, decreases the tendency to postoperative intestinal obstruction or mechanical ileus, permits the peritoneum to attain a state of normality in a relatively shorter period of time, gives a better scar, since the wound heals as a rule by primary intention, and eliminates the possibility of fistula formation.

The grounds cited in favor of drainage are largely the following:

1. It removes tension and permits an avenue of escape for the pus and necrotic tissue that may be present. The removal of these substances is advantageous because it is known that they serve as excellent culture mediums for the pathogenic organism responsible for the infection, and indirectly maintain the infection.

2. It prevents a generalization of the process in cases of a walled-off abscess and minimizes absorption of infected material.

3. The walled-off pocket may be reached through the wound without its being reopened.

4. It decompresses abscess cavities and permits healing from the bottom.

5. It exteriorizes or walls off a damaged area from the general peritoneal cavity.

6. It is a necessity for taking care of leakage from a hollow viscus and to provide an exit for pus produced by tissue which has none of the specific qualities for limiting and combating an infection.

7. It maintains the patency of the opening in the abdominal wall during the time the processes of healing are obliterating the abscess cavity; it likewise establishes a tract along which a fecal fistula may drain in case the wall of the cecum is infected and in case of inadequate closure of the appendiceal stump.

Some of the answers indicate that in many instances drainage is used too often, that one still follows the dictum "when in doubt, drain." It cannot be denied that in some instances the logical method of procedure is to drain. I have reference to the cases in which, because for some reason the focus of infection cannot be removed, when one deals with a walled-off abscess or when necrotic or suppurative tissue is left in the abdo-

3. Miller, H. C.: *Nebraska M. J.* 15: 401 (Oct.) 1930.

4. Marchini, F.: *Arch. ital. di. chir.* 28: 549, 1931.

5. Shipley, A. M.: *South. Surgeon* 3: 303 (Dec.) 1934.

men. Illogical, however, is the "routine" drainage of the peritoneal cavity in every case of appendiceal peritonitis. Management of this type is unquestionably responsible for many unnecessary deaths due to appendiceal peritonitis. Many surgeons have correctly stated in their answers that "blanket rules cannot be given and that the judgment of the surgeon in each case must determine the indications or contraindications to drainage."

Trinca,⁶ in his recent communication based on an analysis of 244 cases of diffuse peritonitis treated without drainage, comes to the following conclusions:

1. Owing to the nature and distribution of the contents of the peritoneal cavity, it is physically impossible to effect adequate drainage in cases of diffuse peritonitis.

2. Attempted drainage is not necessary when the primary focus has been adequately dealt with.

3. In the majority of cases it is unnecessary to remove the peritoneal exudate in the operative treatment of peritonitis.

4. The low mortality obtained in a series of 244 cases of diffuse peritonitis indicates that peritonitis in the early stages is not a serious condition if treated on rational lines.

5. The drainage tube should be abolished whenever possible in the operative treatment of peritonitis.

One must remember that the peritoneum is, as a rule, capable of coping adequately and successfully with an infection. This can be facilitated by the surgeon when the original focus of infection is removed, whether it is a ruptured viscus or a gangrenous appendix. If the general condition of the patient is satisfactory, this measure alone, plus adequate administration of fluids in the form of saline solution, dextrose, blood, and cardiac stimulants, if necessary, would eventually permit an uneventful recovery.

In cases in which the infection is produced by one or more very virulent organisms, the drainage is of more than questionable value because the infection has spread throughout the body, through the lymph and circulatory systems, long before the surgical treatment has been instituted. If the infection is less severe, the introduced tube fails of its purpose of drainage, since the entire peritoneal cavity cannot be drained, and actually increases the danger to the patient by serving as a foreign body, predisposing to the formation of adhesions and consequently to mechanical ileus, and, even under the most favorable conditions, prolongs hospitalization, adds to the discomfort of the patient and interferes with the formation of a strong healthy scar.

CONCLUSIONS

In the course of the last few years I have treated about twenty-five cases of appendiceal peritonitis along the lines mentioned; namely, I have simply eliminated the focus of infection and closed the abdomen, introducing a rubber tissue drain down only to the closed peritoneum; the results obtained were so encouraging that I believe I am justified in drawing the following conclusions:

1. Drainage of appendiceal peritonitis is indicated:

(a) In cases in which the primary focus of infection cannot be removed.

(b) In cases in which a large amount of necrotic and contaminated tissue is left in the abdominal cavity.

(c) In cases of walled-off abscess.

2. In all other cases of appendiceal peritonitis, drainage is definitely contraindicated.

3. The advantages of nondrainage are:

(a) There is less morbidity and less mortality.

(b) It minimizes the possibility of postoperative mechanical ileus.

(c) It shortens the duration of illness.

(d) It minimizes the tendency of postoperative hernia.

(e) It excludes the possibility of development of a fistula.

(f) It minimizes the tendency of postoperative adhesions.

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THE SKIN REACTIONS OF INFANTS AND CHILDREN TO SOAPS

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Surprisingly little is known at the present time of the actual mechanism of the action of soap on the skin. It is obvious that accurate knowledge of such a commonly used material would be of great practical value. Increasing interest in contact dermatitis has brought forth many questions about the rôle of soaps in the development of this condition. There is a vast amount of misinformation available chiefly through the all too powerful medium of propaganda advertising.

Clinical analyses of soap reactions are being made at the present time, chiefly through dermatologists. This is done by means of the patch test, controlled carefully. In 1928 Hazen¹ found eight cases of allergic dermatitis due to soap in a series of 127 patients. In his detailed studies of the patch test in 1931 Stauffer² mentioned soaps and asserted that most of the eczematoid reactions to patch tests with soap solutions occurred in the eczema (contact dermatitis) patient. He did not believe that the alkali content of the soap caused the skin reactions. On the other hand, in his review of soaps, Mayer³ stated that soap hypersensitivity was really an alkali hypersensitivity. Osborne and his associates⁴ have studied the eczematizing properties of soaps in greater detail. They examined 115 patients and found also that many more reactions were evident in the patient with dermatitis. As with the interpretation of the reactions of so many commercial products today, they said "it is obvious that it is impossible to determine the exact eczematizing substances in any given soap unless a complete list of the ingredients used in its manufacture is available." They believed, however, that "the fatty acid formed on hydrolytic dissociation together with many miscellaneous ingredients of soaps, most of which are known eczematizing agents, seem to us the most likely etiologic factors in the production of eczema due to soaps." In a series of seventeen non-selected cases of contact dermatitis, I⁵ found that pure

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1. Hazen, H. H.: Allergic Dermatoses, *Arch. Dermat. & Syph.* **18**: 121 (July) 1928.

2. Stauffer, Hans: Die Ekzemprien (Methodik und Ergebnisse), *Arch. f. Dermat. u. Syph.* **162**: 517, 1931.

3. Mayer, R. L.: Toxicodermien, in *Handbuch der Haut- und Geschlechtskrankheiten*, Berlin, Julius Springer, 1933, IV/2.

4. Jordon, J. W.; Walker, H. L., and Osborne, E. D.: Studies in the Eczematizing Properties of Soap, *New York State J. Med.* **36**: 791 (May 15) 1936.

5. Goldman, Leon: Patch Tests with Soaps, *M. Bull. Univ. Cincinnati* **7**: 90 (Nov.) 1935.

coconut oil soaps had a greater frequency of reaction than other types of soap, including the soaps with a weaker concentration of coconut oil. In five of my cases, soap was a possible etiologic factor. I suggested that sometimes soap may account for a relapse in contact dermatitis when the supposed causative agent had been removed. In his list of materials that commonly induce cosmetic dermatitis, Balyeat⁶ mentioned alkali, mercuric iodide and saponated solution of cresol as being responsible for skin reaction from soap. He listed also those toilet soaps which he found irritating to the skin.

Recently Hansen⁷ has studied the question of soap reactions on the skin. He has determined the time

TABLE 1.—Intensities of the Skin Reactions in Children to 10 per Cent Soap Solutions

Soaps	Degree of Reaction						
	0	1-A*	1-B*	1-C*	1-2	2	2-3
1	5	2	2	3	1	0	0
2	6	6	6	1	0	0	0
3	9	1	4	1	0	0	0
4	7	7	5	5	0	0	2
5	6	3	2	0	0	0	0
6	7	12	4	4	1	1	0

* Arbitrary classification of the degrees of the erythema-edema reaction.

interval for the return of the usual p_H in an area washed with various types of soap. The strong alkalinic soaps, of course, required the longest period. He obtained no positive patch tests in his series to 10 per cent sodium stearate, 10 per cent sodium palmitate and 10 per cent sodium oleate. No significant reactions were obtained with tenth normal sodium hydroxide. In 8 per cent of his cases of eczema (contact dermatitis) he obtained vesicular patch test reactions to *sapo kalinus* (linseed oil, potassium hydroxide and coconut oil). He believed there was no true hypersensitivity to soap, the soap test being a nonspecific reaction. The injurious action of soaps (keratin layer) can be reduced to a minimum, Hansen said, by using a "truly good soap." Bonnevie⁸ too, from a study of some 800 patients with contact dermatitis, concluded that hypersensitivity, in the broadest sense of the term, to soap is very rare, less than 0.3 per cent of cases. In most of the cases of positive soap reactions, the offending agent was some material incorporated in the soap, as benzaldehyde, terpenes, tar and sodium perborate. Sodium perborate (Persil soap) was the commonest eczematogenic agent. There is no doubt, then, that the patient with a contact dermatitis reacts more frequently to soap than the person with a normal skin. This, as I⁵ have pointed out, is a very important practical point. Moreover, soap itself does not produce this positive patch test reaction but chiefly the materials incorporated in it.

To study more closely the reactions of soap on normal skins, it was decided to do this in children. A study of 129 cases was made. The children were all white, with normal skins, and no history, either personal or familial, of any type of skin hypersensitivity or of hay fever or asthma. The children were studied through the courtesy of the obstetric and pediatric services of the Cincinnati General Hospital. The subjects were all

observed during their entire hospital stay. This work reported is a preliminary survey and includes observations of the skin reactions to the patch test and to swabbings with soap solutions.

It seems necessary to review the technic of the controlled patch test. Jordon, Walker and Osborne say that "patch tests properly performed and interpreted should be a great aid in the diagnosis of soap eczema." If work on soap is to be standardized, exact details must be followed in the performance of the patch test. Our present-day technic of this test is the result of years of observation by able investigators since the days of the great pioneer work of Jadassohn⁹ and Bloch.¹⁰ There is some definite disagreement of that important property of the patch test, the concentration of the solution. In his tables, Mayer¹⁰ mentions the use of small bits of moistened soap particles and insists that the control reactions must be known for each type of soap used. Blumenthal and Jaffe¹¹ gave as soap tests 5 per cent soap in hydrous wool fat or 2.5 per cent in 70 per cent alcohol. Osborne and his associates⁴ have used soap solutions in dilutions of 1:100 and 1:400. In my work with soap over the past three years I have employed small bits of soap, 10 per cent solutions and 5 per cent solutions. Apparently, then, if one knows the reaction of soaps on the normal skin, the same concentration of soap may be used for testing the hypersensitive skin. Though there is some disagreement as to the concentration of soap solutions used, there is no disagreement on the time period of observation, from twenty-four to forty-eight hours. If the patch test is to be used to study skin reactions, the material must be kept on at least twenty-four hours. This is very important, especially if one wishes to observe the milder changes produced by soaps. At various times we have tried shorter periods of contact but they were not at all satisfactory. In our study with the children, those children who pulled off their own patch tests before the necessary time interval usually showed no reactions. When the same soap tests are done repeatedly, more agreement is found when the materials remain in con-

TABLE 2.—Reactions to 5 per Cent Soap Solutions

Soaps	Degree of Reaction						
	0	1-A	1-B	1-C	1-2	2	2-3
1	4	5	1	0	0	0	0
2	6	4	0	0	0	0	0
3	7	3	0	0	0	0	0
4	4	3	1	1	1	0	0
5	6	3	0	0	0	0	0
6	9	1	0	0	0	0	0
7	9	1	0	0	0	0	0

tact with the skin for from twenty-four to forty-eight hours. The location of the patch test is also of importance if one wishes to control the milder reactions of soap. When the patch test is done on areas in which there is a considerable amount of pressure and friction, an erythema reaction is made more severe. For the true idiosyncrasy to soaps the vesicular patch test reaction may be obtained on the back. For our purposes of study, the soap solutions were done, as a rule, on the flexor surfaces of the arm and forearm. It is important that the soap solution be in intimate contact with the skin. The adhesive patch usually accomplishes this result. In the infant skin, especially the new-born

6. Balyeat, R. M.: *Cosmetic Dermatitis*, Northwest. M. J. 24:12 (Jan.) 1935.
7. Hansen, Preben: Einige Untersuchungen über die Einwirkung der Seife auf die Haut, Proc. Ninth Meet. Northern Dermat. Soc., Helsingfors, Mercator's Tryckeri, 1936, p. 589.
8. Bonnevie, Poul: Personal communications to the author and discussion of Preben Hansen.

9. Cited by Stauffer.²
10. Mayer, Rudolph: *Das Gewerbeekzem*, Berlin, Julius Springer, 1927.
11. Blumenthal, Franz, and Jaffe, Katha: *Ekzem und Idiosynkrasie*, quoted by Preben Hansen.

infant, the adhesive irritation was fairly severe and the following technic was adopted: The soap solutions were put on a small piece of white washed cotton cloth, covered with a very large cellophane disk, and this combination was then bandaged completely with an extensive bandage. In this way the soap solutions remained on the same area for the period of observation and there was no irritation of the adjacent skin. It is important to repeat these well known details of the technic of the patch test because any significant deviation from them will give rise to faulty conclusions.

The intensity of the reactions was read according to the method of Bloch.⁹ In addition, an attempt was made to grade the degree of the erythema reaction. Unless the details referred to are adhered to closely, the examination of the erythema reaction is entirely valueless. For practical purposes, of course, the more severe reactions are the most important, the 2-3 reaction and beyond that. In this connection one must distinguish between two types of reaction, the toxic reaction type and the eczematoid reaction type.¹² The patient with contact dermatitis gives the eczematoid reaction. With the soaps and especially with their actions on normal skins, one is concerned with milder degrees of the toxic reaction type, chiefly redness and edema.

To simulate more closely the action of soap on the skin, a series of swabbings was done on a selected area. This area, on the mesial aspect of the arm, was swabbed fairly vigorously with a large cotton applicator dipped in the soap solution. The material was allowed to dry and nothing was put over the skin.

The soaps used in these experiments were seven common toilet soaps, which were purchased in the open market. The study is separated into two groups: the first, infants and older children and the second, the new-born. Five children were tested simultaneously with small bits of soap chips and the 10 per cent soap solutions. The intensity of the reaction was approximately the same. In one of the cases the 10 per cent solution gave a slightly stronger reaction than the bits of soap. To determine the influence of the time factor in the performance of the patch tests, five cases were tested with patch tests left on from several minutes to ten hours. The skin showed no reaction in any of these cases and the skin remained negative for a week afterward. Twenty-nine cases were tested to 10 per cent soap solutions.

From table 1 it is seen that the severe reactions were uncommon in this group of 113 tests on twenty-nine patients. There is also little difference between the various soaps used with the exception of soap 4 (a toilet soap containing cresol). Moreover, two patients showed a papulovesicular reaction to this soap. This agrees with the observation of Balyeat.⁶

Table 2, with sixty-nine tests on a smaller group of children (ten), shows about the same grouping of reactions. These tests were not made on the same children as the 10 per cent solutions.

Histologic studies of the mild soap reactions (toxic) were done. These were made of the reddish brown discoloration that follows removal of the patch test after forty-eight hours. At this time the skin is edematous and reddish brown, and the surface is furrowed with parallel fine linear markings. After a few days, branny desquamation occurs. Microscopic studies of the forty-eight hour stage showed wide separation of the lamellae

and areas of fragmentation of the stratum corneum. The stratum granulosum was thin but otherwise not abnormal. No parakeratosis was noted. No other appreciable changes were seen in the epidermis until the basal layer. Here the cells showed vacuolization, distortion, pyknotic nuclei and loss of pigment. There were scattered areas of lymphocytic infiltrate in the upper layers of the derma, with no definite relationship to blood vessels. No appreciable edema of the papilla was made out. No apparent changes in the skin appendages were observed. Detailed microscopic studies, especially of the fat changes of the skin, are being done now. No microscopic studies were made of the vesicular reaction to the patch test, the true eczematoid reaction of hypersensitivity.

Soap swabbings were done in the older children group with 10 per cent soap solutions. Only two soaps were tested in four cases. No changes were observed in the skin after swabbing from two days to eight days.

Eighty-two new-born infants were observed. The patch test was done by means of the patch test bandage on the upper arm. The tests were left on for twenty-

TABLE 3.—Skin Reactions in the New-Born to 10 per Cent Soap Solutions

Soaps	Degree of Reaction					
	0	1-A	1-B	1-C	2	2-3
1	5	2	0	0	0	0
2	1	3	0	0	0	0
5	8	3	0	1	1	0
6	18	6	0	0	0	0

four and forty-eight hours. Twenty-one cases were examined by the patch test method and sixty-one by the soap swabbings. These infants were observed daily for a period of one week. It is important to note that immediately after delivery the child was rubbed every day with an antiseptic oil. No other materials were used on the child's body. In a few cases the patch tests were done a few minutes after birth and in these infants the vernix was merely rubbed away and the patch test applied directly to the skin. After the patch test bandages were removed the test sites were included in the general rubbing of the body with the antiseptic oil. Four different soaps were studied by the patch test method on the twenty-one new-born infants. Only nine reactions were observed. The reaction consisted of a faint, reddish brown area, which in several days showed pin-point desquamation. This change occurred usually from twenty-four to forty-eight hours after the patch test was removed from the skin. Of four soaps studied, one, soap 5, gave most of the reactions.

There is only a slight difference in reactions of the soaps, 5 being perhaps slightly stronger. The difference, however, is not very significant. It is rather interesting to note how few definite reactions were observed in these forty-eight tests on twenty-one infants.

Soap swabbings were done on the remainder of the new-born group, sixty-one new-born infants. Separate swabs were used on each patient and the material was rubbed in rather vigorously over the mesial aspect of the entire arm. These areas had been oiled some three and one-half to four and one-half hours before the swabbing. The swabbings were repeated daily for seven days. No skin reactions of any sort were noted by this method. Four soaps also had been studied in this group (1, 4, 6 and 7). Icterus and the "milk rash" had no effect on the reactions to soap.

12. Miescher, G.: Zur Frage der Spezität der ekzematösen Hautreaktion, Arch. f. Dermat. u. Syph. 173: 119 (Oct. 18) 1935.

Apparently it was not the preliminary oil rub of the skin of the new-born that caused the difference in skin reactions between the new-born and the older children, because a group of older children were taken and the oil was rubbed on from three and a quarter to four hours before the patch tests were made; also immediately before the patch test and also simultaneously with the patch test. These various methods did not seem to reduce the intensity of the reaction to the patch test with soap. This series, however, included only eighteen older children. Moreover, as has already been noted, Blumenthal and Jaffe¹³ advised 5 per cent soap solution in hydrous wool fat. Additional studies are being made at the present time to determine this difference in reaction between new-born infants and the older children.

In eleven patients, four new-born and seven children, the alkali neutralization curves with phenolphthalein and bromthymol blue after the method of Burckhardt¹³ were done. The testing was done both on areas previously swabbed with soap and on normal skin. The results were so variable that no definite conclusions could be drawn from the few cases examined. It appears that many extrinsic factors seemed to influence the test. These tests are being repeated at the present time using the newer method of Burckhardt with a 1:2,000 sodium hydroxide and 1:2,000 phenolphthalein solution.

Following the observations of Burckhardt,¹⁴ it seems that the question of soaps relative to the production of contact dermatitis by other materials is indeed an important problem. He found that the skin could be sensitized to nickel by the single application of nickel sulfate on the skin previously damaged by alkali or a strong alkali soap (schmierseife). The mechanism is certainly not known. The following reasons have been suggested: changes in keratin which allow for the passage of antigens into the skin, the mechanical removal of the upper superficial layers of the skin, the partial disappearance of the protective fat layer from the skin, and the changes in the buffer action of the skin. Before these complex problems are studied, it seems more advisable to know the workings of soaps on normal skin.

CONCLUSIONS

It is generally agreed at present that patients with a contact dermatitis react more frequently to soap than patients with a normal skin. The eczematoid (vesicular) soap patch test is uncommon. Substances incorporated in soaps are supposed to be the more important eczematogenic agents.

A study was made of the skin reactions of seven common toilet soaps on 127 children, including eighty-two new-born. The methods included patch testing and soap solution swabbings. No changes were observed grossly after repeated soap swabbings. Exacting details of the patch test technic must be kept; otherwise the interpretation of the mild (toxic) patch test reaction is valueless. The new-born infants reacted much less frequently to the patch test than the older infants and children. The differences between the patch test reactions of the various soaps were not marked save for an increased intensity of reaction with a soap containing cresol.

PROTAMINE INSULIN VERSUS ORDINARY INSULIN

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Hagedorn and his co-workers¹ have prepared from the sperm of a trout (*Salmo iridius*) the substance protamine, which, properly buffered, combines with insulin to form the compound protamine insulinate or, for want of a less confusing name, "protamine insulin." When this compound, which is sparingly soluble in the tissue fluid, is given hypodermically, it slowly breaks down so that the active insulin is gradually released and absorbed, thereby causing a continuous and prolonged action on the blood sugar.

It has been reported that occasionally the final effectiveness of protamine is delayed beyond the day of its administration as late as four or five days.² The duration of this prolonged absorption appears to approach nature's method of continuous insulin secretion. The Hagedorn investigators, basing their conclusions on a carefully treated group of diabetic patients, have shown these encouraging results with protamine insulin: a more prolonged insulin action without increasing the number of injections, diminished blood sugar fluctuations, and reduction of the risk of developing marked hypoglycemia reactions. They have found that the effect on the blood sugar is less rapid but more persistent than with ordinary insulin, so that normal blood sugar may be attained even in some cases of severe diabetes. Such results have been confirmed by Root and his co-workers,³ Conlin,⁴ Best, Kerr, Campbell and Fletcher,⁵ and Sprague and his co-workers.²

What studies have been given to the action of protamine insulin on the absorption of the dextrose of the food appear to have been made for the purpose of rearranging the carbohydrate content of the day's allowance so as more nearly to meet the rate of absorption of the protamine compound. Thus Hagedorn's patients were given diets averaging a total of 2,300 calories, containing about 70 Gm. of protein and 100 Gm. of carbohydrate. By giving protamine insulin in the evening, better results were obtained, the diet being divided so that 40 per cent of the carbohydrate portion was taken at breakfast, 40 per cent at lunch and 20 per cent at dinner. Sprague obtained better results by providing diets containing from 160 to 170 Gm. of carbohydrate, apportioned approximately 20 per cent, 40 per cent and 40 per cent, because the slow development of the maximal effectiveness of protamine insulin when given before breakfast makes that division desirable. Root,³ advocating higher carbohydrate diets, from 130 to 241 Gm., also obtained better results by rearranging the diets so

Miss Mary McNulty, B.S., was chief dietitian under whom the diets were prepared. Drs. Philip Duca and Albert Schwartz gave valuable assistance in carrying out the details of the experiment, Frank Cateca and Miss Marian Hanahan performed laboratory examinations.

Dr. F. B. Peck of Eli Lilly & Co. and Drs. H. Sidney Newcomer and J. A. Morrell of E. R. Squibb & Sons placed at the disposition of the author sufficient quantities of protamine insulin to enable him to undertake and complete the experiments, as well as to maintain an increasing number of patients on the combined insulin therapy.

1. Hagedorn, H. C.; Jensen, B.; Krarup, N. B., and Wodstrup, I.: Protamine Insulinate, *J. A. M. A.* **106**: 177 (Jan. 18) 1936.

2. Sprague, R. G.; Blum, B. B.; Osterberg, A. E.; Kepler, E. J., and Wilder, R. M.: Clinical Observations with Insulin Protamine Compound, *J. A. M. A.* **106**: 1701 (May 16) 1936.

3. Root, H. F.; White, Priscilla; Marble, Alexander, and Stotz, E. H.: Clinical Experience with Protamine Insulinate, *J. A. M. A.* **106**: 1701 (Jan. 18) 1936.

4. Conlin, Frank: Protamine Insulinate, *Nebraska M. J.* **21**: 173 (May) 1936.

5. Best, C. H.; Kerr, R. B.; Campbell, W. R., and Fletcher, A. A.: Protamine Insulin, *Canad. M. A. J.* **34**: 400-401 (April) 1936.

13. Burckhardt, W.: Die Rolle des Alkali in der Pathogenese des Ekzems, speziell des Gewerbeekzems, *Arch. f. Dermat. u. Syph.* **173**: 155 (Oct. 18) 1935.

14. Burckhardt, W.: Die Rolle der Alkalischädigung der Haut bei der experimentellen Sensibilisierung gegen Nickel, *Arch. f. Dermat. u. Syph.* **173**: 262 (Nov. 18) 1935.

that larger portions of carbohydrate were given for breakfast and lunch and smaller for supper, as in Hagedorn's method.

In spite of the fact that the slow absorption of protamine insulin causes a delayed action, and ordinary insulin, more rapidly absorbed, has immediate effects, the various investigators contend that both types of insulin should be given before meals, irrespective of the rate of absorption of the dextrose of the food or type of diet. They advocate that protamine compound be given from sixty to ninety minutes before meals,³ thereby allowing more time for it to act on the fasting blood sugar, while the ordinary insulin be given from fifteen to twenty minutes before meals also.

POWER OF OXIDIZING THE DEXTROSE OF THE MEAL

Confronted by the fact that protamine insulin is slow acting, I decided to study (1) its effect on the fasting blood sugar during the interval between the time of its injection and the eating of the meal; (2) its rate of action on the increased blood sugar throughout the

tion of the breakfast, then every half hour for two hours, and every hour for two hours; then lunch was given, which contained the same proportions of protein, fat and carbohydrate as the breakfast. Immediately on completion of lunch a blood specimen was obtained for sugar estimation followed again by another in an hour. Protamine insulin, being a slower acting compound, was given one-half hour before breakfast to the group under study. The doses of protamine insulin given varied from 20 to 60 units at each injection.

The ordinary insulin group (four patients) was also given a total of eleven blood sugar estimations. Thus a fasting blood specimen was obtained in each of the four patients in the group followed by a calculated and carefully weighed breakfast; another blood specimen was obtained immediately on completion of breakfast and again in from fifteen to twenty minutes, followed immediately by the designated dose of ordinary insulin. A blood specimen was obtained for sugar estimation in from fifteen to twenty minutes, then every half hour for one and one-half hours, and again every hour for

TABLE 1.—Protamine Insulin Group (Meal Period)

Patient	Sex	Age	Weight	Duration of Disease	Complications Present	Previously Treated by Diet, Insulin	Fast- ing Blood Sugar	Prot- amine Insulin Dose	Blood Sugar									
									Breakfast					Lunch				
									Before	After	½ Hr.	½ Hr.	½ Hr.	½ Hr.	1 Hr.	1 Hr.	Imme- diately After	1 Hr. Later
C. G.	♀	54	161	6 yrs.	None	Both	200	50	188	234	279	286	234	224	204	166	200	234
M. M.	♀	50	189	10 yrs.	Cataracts	Both	214	60	212	209	311	278	270	237	222	212	200	234
C. L.	♀	60	150	14 yrs.	Cataracts	Both	207	40	193	190	290	294	286	286	240	205	203	270
A. L.	♂	67	137	7 yrs.	None	Both	134	20	130	168	210	248	233	200	178	150	158	184

period of absorption of the dextrose of the meal; (3) its effect on the blood sugar at the end of the absorption of the meal, usually at the end of from three to four hours, the average time required for emptying the stomach;⁴ (4) the resultant blood sugar level just prior to the succeeding meal; (5) the effect of absorption of the dextrose of the succeeding meal on this resultant blood sugar level at the end of the first hour after eating; (6) the effect of protamine insulin on the blood sugar during the interval between the patient's retiring and rising (i. e., midnight to 7 a. m., or the resting interval); (7) the result of the foregoing observations as compared with another group of diabetic patients to whom ordinary insulin was administered under analogous conditions; (8) the optimum time to administer protamine insulin in relation to the absorption of the dextrose; (9) whether it should be given alone or as an aid to ordinary insulin, and (10) the most effective clinical application of my observations. As a control, I also examined diabetic patients to whom no form of insulin had been administered.

In order to make these observations, eleven blood sugar estimations for each patient were taken in both the protamine insulin group (four patients) and the ordinary insulin group (four patients) during the meal period. The specimens of blood were obtained from the vein and examined for dextrose according to the Folin-Wu method. Thus for the protamine group a fasting blood specimen was obtained followed immediately by hypodermic injection of a designated number of units of protamine insulin; one-half hour later another blood specimen was taken, followed immediately by breakfast; again a blood specimen immediately on comple-

two hours. Lunch was then served, followed immediately on its completion by the obtaining of another specimen of blood, and again in an hour. This group was given ordinary insulin from fifteen to twenty minutes after meals⁵—not before—as had been our practice with all diabetic patients requiring insulin who came to our diabetic dispensary or ward. Doses given to each member of the group varied from 16 to 60 units.

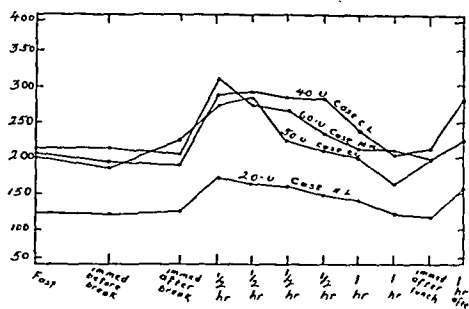


Chart 1.—Protamine insulin group (meal period).

The diets contained all the essential nutrients present in natural foods. We prescribed higher carbohydrate diets, varying from 100 to 180 Gm., proteins from 60 to 80 Gm. and fats from 80 to 100 Gm. for the total day. The quantities were divided into three equal portions so as not to vary from the established habits of the patients: breakfast containing one third of the day's total allowance of protein, fat and carbohydrate, and lunch one third. None of the patients had suffered previously from such gastro-intestinal disturbances as might interfere with the proper absorption of the food.

6. Rehlfuss, M. E.: Proteins versus the Carbohydrates: An Inquiry into Their Gastric Digestion, J. A. M. A. 103: 1600 (Nov. 24) 1934.

7. Sindoni, Anthony, Jr.: Optimum Time to Administer Insulin, Arch. Int. Med. 57: 949 (May) 1936.

During these examinations the patients were well occupied and showed no mental disturbance. The patients who had been treated by insulin previously to our studies were made to discontinue the therapy for three days before we examined them. Both forms of insulin were given for breakfast; neither was given for lunch. All the patients under examination were from the diabetic clinic and ward of the St. Agnes Hospital.

For clarification we tabulated each group. In the experiments outlined in table 1 we found that when protamine was given before breakfast at the end of the first half hour interval there was a very slight decrease in the fasting blood sugar as compared with the original fasting level. This was found to occur in all four cases. This is probably due to the little absorption of the insulin of the protamine compound and clearly indi-

of his food intake, will maintain the blood sugar at a constant normal level, except perhaps after meals, when it is slightly elevated, but always within the normal physiologic limit.

Next we proceeded to determine the effect of ordinary insulin on the blood sugar during the absorption of a meal as compared with protamine insulin. In prescribing ordinary insulin we gave it within fifteen to twenty minutes after meals⁷ during the inception of absorption of the dextrose of the meal. The dosages of ordinary insulin varied from 16 to 50 units. Diet proportions were similar to those given the protamine patients (table 2). This is graphically illustrated in chart 2.

The interesting fact revealed following these observations was that ordinary insulin is absorbed with extreme rapidity. The ordinary insulin, as compared

TABLE 2.—Ordinary Insulin Group (Meal Period)

Patient	Sex	Age	Weight	Duration of Disease	Complica- tions	Previous Treat- ment: Diet, Insulin	Fast- ing Blood Sugar	B Sugar Breakfast		Blood Sugar								
								Imme- ding Blood After	15-20 Min. Later	0-In- sulin	15-20 Min.	½ Hr.	½ Hr.	½ Hr.	1 Hr.	1 Hr.	Lunch	
																	After	1 Hr.
F. D. (1)	♂	62	178	10 yrs.	Retinitis	Diet	260	183	243	16	243	260	240	207	157	134	80	131
C. W. (2)	♂	60	153	8 yrs.	None	Diet	217	234	260	40	286	203	183	166	85	60	131	153
M. A. (3)	♀	59	164	7 yrs.	None	Diet	224	200	217	50	260	235	207	150	60	50	68	134
C. H. (4)	♂	34	167	2 yrs.	None	Diet	125	150	183	20	157	150	80	63	50	50	55	130

cates its slow absorption and action. Immediately on completion of the breakfast the blood sugar was slightly increased in two cases and slightly decreased in the other two, as compared with the blood sugar at the end of the one-half hour fasting interval when protamine insulin was given. But in the next half hour, and for three hours, the blood sugar of all the patients in the protamine insulin group rapidly increased above the original fasting level to a new high peak, after which it began to decrease at the end of the absorption. This is graphically illustrated in chart 1.

It appears from these observations that the height or level of the blood sugar and its persistence following the absorption of the carbohydrate of the meal depends in all probability on the amount and rate of absorption

with the protamine insulin, was better able in all the cases in the group to oxidize the rapidly absorbed dextrose of the meal, causing a rapid oxidation of the dextrose so that a normal or slightly below normal blood sugar level was maintained for from two to two and one-half hours before the next meal (lunch). It appears from these observations that the patients received the beneficial effects of the rapid oxidizing action of the insulin on the dextrose throughout the absorption period of the breakfast by maintaining a nearer-to-normal blood sugar level as compared with the protamine insulin group. With the next meal (lunch) the beneficial effects of the insulin on the metabolic system were still evident in the reduced level of the blood sugar an hour after lunch as compared with the blood sugar level an hour after breakfast when insulin was administered.

We then proceeded to determine the effect of the protamine insulin, as compared with the ordinary insulin, on the blood sugar during the resting interval: the period when the patient retires, from 12 midnight to 7 a. m., when no food is given. These patients under examination had been confined to bed several days previously to our examination. The purpose, of course, was to make certain that no previous disturbance would interfere with our examination. When studies with protamine insulin were made, a blood specimen was obtained at midnight, followed immediately by a dose of protamine insulin; then another blood specimen was taken at 4 a. m. and again at 7 a. m. for sugar estimations. Similar tests were made with ordinary insulin.

Three groups of three patients were examined—one group of three patients with protamine insulin, the other group of three with ordinary insulin, and finally a control group of three patients to whom no form of insulin was administered but blood sugar specimens were obtained at midnight, 4 a. m. and 7 a. m.

Thus for clarification the results obtained in each group of patients during the resting interval were tabu-

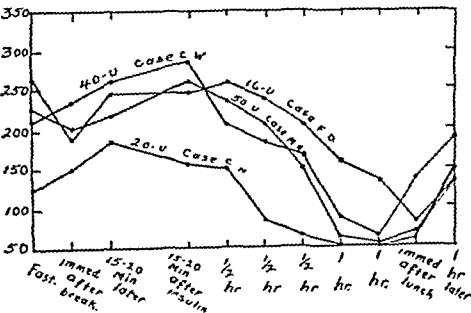


Chart 2.—Ordinary insulin group (meal period).

of carbohydrate as well as on the exogenous or artificial insulin, the degree of damage to the insulin-secreting mechanism (the islands of Langerhans) and the state of liver function (eliminating any gastro-intestinal disturbance that might interfere with its digestion or absorption). The protamine insulin compound with the endogenous insulin was still insufficient to oxidize the rapidly increased dextrose of the meal as absorption continued, resulting in rapidly increased blood sugar. A normal individual, irrespective of the amount

lated. For the protamine insulin group dosages varied from 16 to 30 units (table 3). This is graphically illustrated in chart 3.

The slight protamine insulin action occurred from midnight to 4 a. m. and increased slightly from 4 a. m. to 7 a. m., thus emphasizing the delayed, slow and prolonged insulin action.

TABLE 3.—Protamine Insulin Group (Rest Interval)

Patient	Sex	Age	Weight	Duration of Disease	Complications	Previous Treatment, Diet, Insulin	B Sugar at 12 p. m.	P Insulin Dose	Blood Sugar	
									4 a. m.	7 a. m.
A. L.	♂	67	138	7 yrs.	None	Both	100	20	93	70
B. M.	♀	59	148	9 yrs.	Ulcer right large toe	Both	191	30	180	176
S. R.	♀	48	155	4 yrs.	Uterine fibroid	Both	141	16	134	120

With the ordinary insulin the reduction of the blood sugar was more pronounced, as shown in table 4. The dose of ordinary insulin varied from 10 to 30 units.

Chart 4 illustrates the steep reduction of the blood sugar caused by the ordinary insulin as compared with the slight, slow, "somewhat straight line" decline of the blood sugar caused by the protamine insulin. With

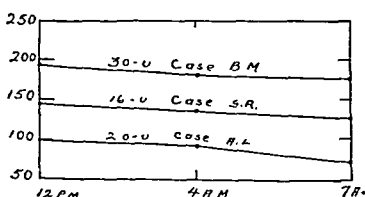


Chart 3.—Protamine insulin group (rest interval).

ordinary insulin the maximum effects on the blood sugar were obtained from midnight to 4 a. m. From then on it appeared to lose its effectiveness. What reduction of the blood sugar occurred after 4 a. m. was probably

due to the beneficial effects produced on the liver and muscle glycogen function by the insulin action from midnight to 4 a. m.

In the control diabetic group in which no form of insulin was administered there was a gradual increase in the morning blood sugar above the midnight level (table 5). On the basis of these clinical studies I agree with Hagedorn and other investigators that, when protamine insulin compound is given hypodermically, a slow but continuous disintegration of the compound takes place which slowly liberates the active insulin. The duration of the disintegration and the rate of absorption of the active insulin have been affected somewhat by the practice of adding zinc to insulin compound⁸ for the purpose of further prolonging the protamine insulin action. Other factors affecting its action are individual susceptibility to the compound, age, the duration of the diabetes and the condition of the cardiovascular system.

Indiscriminate use of the compound may subject the patient to unfavorable disturbances or symptoms. Lawrence⁹ already has shown its inability to control the hyperglycemia of the meal caused by the dextrose of high carbohydrate diets. Gray¹⁰ also appears to be disappointed with protamine insulin compound. Allen¹¹

speaks of more violent fluctuations of the hyperglycemia and hypoglycemia with protamine insulin than with the old insulin. Fortunately, we have had no cases of protamine insulin hypoglycemia reactions in patients with extensive premature cardiovascular sclerosis. I feel that if such reactions did occur in such patients they would probably be more serious than with the ordinary insulin because of their longer duration, since hypoglycemia reactions, as shown by Ernstene and his co-workers,¹² have a deleterious effect on the myocardium.

PROBABLE ULTIMATE EFFECTS ON THE DIABETIC METABOLISM

Forsgren¹³ has shown by histochemical methods that the carbohydrate metabolism of the body undergoes a cyclic change. Agren and his co-workers¹⁴ also found a rhythmic change in the liver with alternate glycogen production and bile secretion. Through a series of numerous experiments, Higgins and his co-workers¹⁵ have shown that the food intake determines the cyclic changes that occur in the liver following feeding. They

TABLE 4.—Ordinary Insulin Group (Rest Interval)

Patient	Sex	Weight	Age	Duration of Disease	Complications	Previous Treatment	B Sugar at 12 p. m.	O Insulin Dose	Blood Sugar	
									4 a. m.	7 a. m.
L. M.	♀	118	72	7 yrs.	Retinal hemorrhage	Diet	231	30	72	70
S. M.	♀	148	59	9 yrs.	Ulcer of right foot	Both	217	20	142	120
S. R.	♀	155	48	4 yrs.	Cataracts	Both	162	10	94	112

were able to vary the cyclic changes in liver and muscle by changing the feeding time. This is the opposite view of Möllerström.¹⁶ Therefore isn't it important to have the dextrose of the meal properly oxidized, so as to effect proper glycogen storage and help to maintain normal cyclic changes in the liver and muscles? I believe that the more complete the oxidation of dextrose of the meal in diabetes, the more normal will be the blood sugar throughout the period of its absorption, the better the glycogen storage and function of liver and muscle, and hence the better the metabolic equilibrium. There would result in all probability fewer diabetic complications such as gangrene, coronary disease or visual disturbance. Premature arteriosclerosis in diabetes would be further delayed, approaching probably the normal time in its inception. A large percentage of the insulin patients would be able to discontinue insulin therapy.

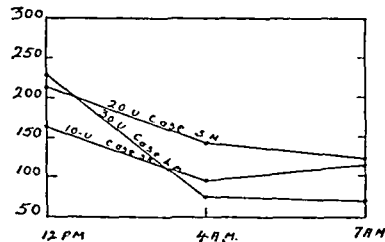


Chart 4.—Ordinary insulin group (rest interval).

8. Scott, D. A., and Fisher, A. M.: The Effect of Zinc Salts on the Action of Insulin, *J. Pharmacol. & Exper. Therap.* 55: 206 (Oct.) 1935.

9. Lawrence, R. D., and Archer, Nora: Some Experiments with Protamine Insulinate, *Brit. M. J.* 1: 749 (April 11) 1936.

10. Gray, P. A.: Personal communication to the author, Sept. 9, 1936.

11. Allen, F. M.: Some Difficulties Arising in the Use of Protamine Insulinate, *J. A. M. A.* 107: 130 (Aug. 8) 1936.

12. Ernstene, A. C.; Riseman, J. E. F.; Stern, Beatrice, and Alexander, Benjamin: The Mechanism of the Circulatory Changes Accompanying Insulin Hypoglycemia, *Am. J. Physiol.* 111: 440 (March) 1935.

13. Forsgren, E., quoted by Möllerström.¹⁶

14. Agren, Gunnar; Wilander, Olof, and Jorpes, Erik: Cyclic Changes in Glycogen Content of the Liver and Muscles of Rats and Mice, *Biochem. J.* 25: 777, 1931.

15. Higgins, G. M.; Berkson, Joseph, and Flock, Eunice: The Diurnal Cycle in the Liver of the White Rat: Food, a Factor in Its Determination, *Am. J. Physiol.* 105: 177-186 (July) 1933.

16. Möllerström, Jakob: Periodicity of Carbohydrate Metabolism and Rhythmic Functioning of the Liver, *Arch. Int. Med.* 52: 649 (Nov.) 1933.

Thus in a group of eighty-five diabetic patients who had had treatment previously to coming to our diabetic clinic, I was able when administering insulin after meals to effect such a reduction of the increased hyperglycemia of the food that discontinuance of insulin therapy resulted in 60 per cent of the cases, reduction of the total daily dosages resulted in 20 per cent, while in the remaining 20 per cent all of them of such severity, the insulin dosage was slightly increased.¹⁷

The slowly acting protamine insulin appeared to have little or no effect on the rapidly absorbed dextrose of the higher carbohydrate meal. However, within an hour before lunch the blood sugar of the protamine group was slightly reduced below the original fasting sugar, owing in all probability to the fact that absorption of the food had been completed, an absorption coupled with a slight insulin absorption and action from the protamine compound. But the blood sugar rapidly increased, rising to abnormal heights immediately after lunch and an hour later as recorded by the blood sugar estimation, perhaps continuing to increase until the end of absorption. The fact remains that absorption of protamine insulin is too slow to oxidize the rapidly absorbed dextrose of the meal for from two to three hours after eating.

TABLE 5.—Control Diabetic Group (Rest Interval)

Patient	Sex	Age	Weight	Duration of Disease	Complications	Previous Treatment, Diet, Insulin	Blood Sugar		
							12 P. m.	4 a. m.	7 a. m.
S. R.	♀	48	155	4 yrs.	Cataracts	Both	125	128	130
S. M.	♀	59	143	9 yrs.	Gangrene of right foot	Both	180	190	234
A. L.	♂	66	138	6 yrs.	None	Both	158	160	166

What will be the immediate effect on the metabolic system of these sudden increases in blood sugar to abnormally high levels maintained perhaps for two or more hours? What would the latent effects be if the increased hyperglycemia were repeated after each meal, extended over periods of months and years, even though the fasting blood sugar was normal and in spite of the fact that the patient shows no immediate external manifestations? The answer to these questions will, of course, depend on the height of the abnormal blood sugar level, the duration of this abnormal level during the absorption of the food, the age of the patient, the condition of his cardiovascular system at the time of its onset, the state of his liver function and the duration of his diabetes.

Probably the immediate effects of this incomplete oxidation of the carbohydrate of the meal are a slight interference with the liver function, especially its rhythmic action—glycogen production and bile secretion. If the incomplete or disturbed carbohydrate oxidation continues after each meal and is extended over a period of months and years, will not the disturbed metabolism produce marked effects, however latent? These latent effects in all probability manifest themselves in premature sclerotic changes in diabetic patients.

The chemical disturbances that are responsible for these premature changes are still in doubt. Patchy distribution of the lesions in arteriosclerosis suggests some preceding local condition in the involved areas which

favors the precipitation of lipoids.¹⁸ Warren¹⁹ is of the opinion that the effect of the high sugar concentration and its fluctuation in persons with diabetes possibly lead to swelling of the intimal ground substances through changes in osmotic pressure and thus favor lipid inhibition. It is generally believed that, when the blood sugar rises following a meal, the cholesterol rises also, the continued hyperglycemia leading to disturbance of the cholesterol metabolism.²⁰ Why isn't the increased hyperglycemia and its fluctuations, which occur invariably during the absorption of the meal and are repeated after each meal, accompanied probably by a rise or disturbance in cholesterol, the factors most likely to produce the local condition of the arterial walls? Since the consensus is that a disturbance in cholesterol metabolism plays an important part in the etiology of arteriosclerosis, isn't it justifiable to infer that the incomplete oxidation of dextrose of the meal may disturb the rhythmic or glycogen function of the liver and help to disrupt cholesterol metabolism as well as to effect vascular damage favoring precipitation of lipoids and eventually bring about premature sclerotic changes? Perhaps such disturbance may not necessarily manifest itself by hypercholesteremia but by disturbed cholesterol metabolism, even though blood cholesterol is normal; perhaps over a long period of months or years it will help to bring about premature sclerosis. Duff²¹ states that arteriosclerosis in a man can and usually does develop without deviation of the cholesterol content of the blood beyond the normal limits of variation.

Recently there has been a change in the ratio of carbohydrate and fat in the diets to a high carbohydrate and low fat content. Such a change of ratio has caused, according to Rabinowitch,²² Joslin²³ and others, a delay in the period of inception of arteriosclerosis. But in spite of this it still makes its inception prematurely in diabetic patients as compared with the nondiabetic.

In view of the fact that sclerotic changes are prevalent prematurely in diabetic patients, there are reasons enough to believe that the extent of the disturbed cholesterol metabolism, as well as the sclerotic changes, will depend on the state of the carbohydrate metabolism. Thus there are patients who appear to control their diabetes for years without artificial insulin because they have a normal fasting blood sugar. This is in all probability due to the fact that they possess sufficient circulating endogenous insulin to metabolize their own carbohydrate. But for an interval of perhaps one to three hours following each high carbohydrate meal the blood sugar becomes increased above the normal level, probably causing a rise or a disturbance of the cholesterol metabolism. If this increased hyperglycemia should be extended over a period of years, it would more than likely cause a disturbance of glycogen function of liver and muscle and various other of the metabolic disorders or complications so common in diabetes. To cite one of the many cases that have come under observation:

A man, aged 66, weighing 187 pounds (85 Kg.), who suffered from diabetes for at least seven years, had been treated by his physician with diet and insulin. His diet was liberal;

18. Graybill, Ashton, and White, P. D.: *Diseases of the Heart: A Review of Some Contributions Made During 1935*, Arch. Int. Med. 57: 791 (April) 1936.

19. Warren, Shields: *The Pathology of Diabetes Mellitus*, Philadelphia, Lea & Febiger, 1930, p. 139.

20. Page, I. H.: Personal communication to the author, Aug. 25, 1936.

21. Duff, G. L.: *Experimental Cholesterol Arteriosclerosis and Its Relationship to Human Arteriosclerosis*, Arch. Path. 20: 81 (July), 257 (Aug.) 1935.

22. Rabinowitch, A.: *Arteriosclerosis in Diabetes: I. Relationship and Arteriosclerosis: II. Effects of the High Sugar Diet*, Ann. Int. Med. 8: 1436-1474 (May) 1937.

23. Joslin, E. P.: *Diabetes Mellitus*, New England J. Med. 209: 519 (Sept. 14) 1933.

17. Sindoni, Anthony, Jr.: *Vitamin Deficiency in Prescription Diets of Diabetics*, Am. J. Digest. Dis. & Nutrition 2: 759 (Dec.) 1936.

in fact it was increased at various intervals because of his frequent low fasting blood sugar. When he first was examined three years previously his fasting blood sugar was 113 mg.; two hours after meals it was 190 mg., in spite of the fact that his blood cholesterol was increased only within the normal range. Three months later he was admitted to the hospital suffering from diabetic gangrene in the little toe of the left foot and retinal hemorrhage in both eyes.

Even though his fasting blood sugar was normal, he was not properly oxidizing the dextrose of the meal, as was evidenced by the increased hyperglycemia two hours after meals. This condition had perhaps con-

These observations emphasize perhaps the fallacy of attempting to determine by fasting blood sugar estimations only the oxidizing power of the diabetic patient for dextrose. Blood sugar estimations during the absorption of the food would demonstrate more clearly the patient's oxidizing power and state of progress and the state of the insulin secreting mechanism, as well as that of the liver glycogen or its rhythmic function.

Thus with these facts in mind I felt that protamine insulin should be prescribed only as an aid to ordinary insulin and then only when the patient retired or in the morning after breakfast following the ordinary insulin.

TABLE 6.—Patients on Combined Insulin Therapy (Protamine and Ordinary)

Patient	Age	Sex	Duration of Disease	Complications Present	Previous Treatment, Diet, Insulin	Initial Blood Sugar		Duration of Treatment	Present Blood Sugar		Reduction in Insulin		Comment
						Fasting	2 Hr. After Meal		Fasting	2 Hr. After Meal	Protamine	Ordinary	
R. S.	73	♀	10 yrs.	Carcinoma of right breast, furuncle on chest	Both	303	410	7 wks.	134	156	4	10	Patient at present having x-ray therapy to breast; "feels fine"
S. M.	48	♀	8 yrs.	None	Both	157	183	6 wks.	138	166	8	8	Feels "fine," more "pep"
W. R.	66	♂	9 yrs.	Retinal hemorrhage	Both	118	197	4 wks.	127	157	..	4	Vision not improved; feels better
A. D.	58	♀	9 yrs.	Infection of right thumb with osteomyelitis	Both	197	356	8 wks.	83	124	8	14	Patient has had two operations on thumb (gas anesthesia); feels fine; healed
M. C.	55	♀	7 yrs.	Retinitis	Both	203	257	2 mos.	93	118	4	13	Feels well, better since on protamine insulin
N. G.	11	♀	3 yrs.	None	Both	150	243	2 mos.	128	145	..	2	Enjoys better health
D. R.	14	♂	5 yrs.	None	Both	226	326	6 mos.	130	148	..	..	Forced to increase protamine and ordinary insulin; feels fine
C. W.	49	♀	10 yrs.	Thyroid (toxic)	Both	263	320	2 mos.	188	197	..	..	Refused surgical intervention; at present on x-ray therapy
L. B.	51	♀	11 yrs.	Ulcer of large left toe	Both	150	263	2 mos.	93	120	4	..	Toe healed; patient well
A. V.	74	♀	18 yrs.	Gangrene of right large toe	Both	118	230	2 mos.	93	126	10	16	Patient had a high amputation; good recovery; insulin discontinued
D. S.	55	♀	12 yrs.	Retinal hemorrhage	Both	183	267	4 mos.	166	176	4	12	Feels better; no visual improvement
M. R.	64	♀	14 yrs.	Retinitis	Both	166	234	4 wks.	138	146	..	..	Feels better; more "pep"

tinued over a period of years and finally manifested itself by marked premature sclerotic changes. Perhaps the disturbance of cholesterol in the case cited, though not amounting to an abnormal increase, was more pronounced with the increased hyperglycemia. And perhaps the hyperglycemia extending over a period of months and years hastened or probably aided in causing the vascular changes. Thus if increased blood sugar fluctuation above the normal level is considered

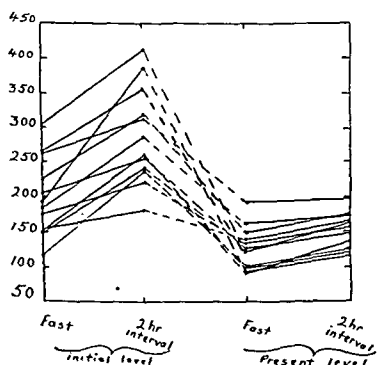


Chart 5.—Patients on combined insulin therapy (protamine and ordinary).

a possible factor in producing an injury to the arterial walls (as it does, according to Warren), increased cholesterol, according to Duff, or disturbed cholesterol metabolism will probably accelerate the development of arteriosclerosis. This, of course, is in agreement with many observers who find increased or disturbed cholesterol accompanying marked sclerosis of diabetic patients.

The reasons for advocating protamine insulin after breakfast following the ordinary insulin are: 1. When protamine insulin was given one-half hour before breakfast it appeared to have little or no effect on the fasting blood sugar or on the blood sugar during the first four hours of the resting interval. 2. The effects of protamine are too delayed to oxidize the rapidly increased hyperglycemia caused by the breakfast of those on the higher carbohydrate diets. 3. No apparent advantage is gained by prolonging the interval between protamine insulin injection and the time of eating breakfast; probably, on the other hand, it increases the discomfort of the patient. During the interval from breakfast to supper, ordinary insulin after meals⁷ should be given because its rapid absorption and action as well as its short duration results in a more complete oxidation of the rapidly absorbed dextrose of the meal. Page²⁰ states that ordinary insulin itself, while sharply lowering the blood sugar, tends also to reduce the cholesterol within a period of three hours after its administration to rabbits. In advocating the combined insulin therapy, I feel that by its use the elevation of the blood sugar caused by the absorption of the dextrose of the meal could be reduced more nearly toward the normal level.

CLINICAL APPLICATION OF THE OBSERVATIONS

For clinical trial and treatment a group of patients was selected for whom we prescribed combined protamine and ordinary insulin. Our purpose was to deter-

mine their effects on the increased hyperglycemia of the food as well as on the fasting blood sugar level. The ages of the patients varied from 11 to 74 years; the duration of the treatment varied from four weeks to six months. A large number of the patients had been treated by diet and ordinary insulin previous to coming under our care. Many suffered from various forms of complications in spite of the fact that they had a somewhat normal fasting blood sugar on their initial examination. Table 6 explains the results achieved in a few of the many cases, graphically illustrated in chart 5.

The interesting facts from our observations revealed that many of the patients, in spite of the normal fasting blood sugar level on the initial examination, showed a marked increase during the absorption of the food even though they had been previously treated by diet, insulin, or both. Such patients are probably among the large group who suffer from marked premature sclerotic changes and diabetic complications.

An important fact observed among the few of our patients on the combined insulin therapy was that in spite of the low blood sugar immediately before breakfast and also at the end of the two hour interval, which would ordinarily produce symptoms of hypoglycemia in the average diabetic patient, they felt well. Some patients at the end of the two hour interval had a blood sugar level as low as 50 mg. without any apparent discomfort.

SUMMARY OF OBSERVATIONS

1. Incomplete oxidation of the dextrose of the meal, as evidenced by the increased hyperglycemia occurring after each meal, extended over a period of months and years may bring about a disturbance in the cyclic glycogen function of the liver and muscles (Möllerström, Forsgren, Higgins, Agren and his co-workers) and alterations in the arterial walls (Warren), though perhaps these alterations are brought on by an injury of some kind (Duff). These alterations in the arterial wall precede the precipitation of lipoids²⁴ and initiate the premature sclerotic changes so common in diabetic patients and increase in or disturbance of cholesterol metabolism, which accelerates the development of premature sclerotic changes.

2. Blood sugar estimation following meals during its absorption would reveal the extent as well as the progress of the patient's oxidizing power for dextrose.

3. A fasting blood sugar estimation is not a reliable and complete index to a patient's oxidizing power of dextrose or his progress.

4. Protamine insulin compound is absorbed too slowly to oxidize the rapidly absorbed dextrose of the high carbohydrate diets advocated today; hence it is unable to control the increased hyperglycemia.

5. Ordinary insulin within fifteen to twenty minutes after meals, because of its rapid absorption and action, is superior to protamine insulin to oxidize the rapidly increased hyperglycemia of the higher carbohydrate meal, and hence it is better able to reduce the increased hyperglycemia.

6. It is not advisable to give protamine insulin before meals because (1) if given a half hour before breakfast it has little or no appreciable effect on the blood sugar; (2) a longer interval between the injection and the eating of a meal may subject the patient to much unnecessary discomfort; (3) it should not be given during the

day with the thought of affecting the dextrose of the following meal; (4) no advantage is gained in any case, since the rapid absorption of the dextrose of the meal will rapidly increase the hyperglycemia; (5) the maximum effects of protamine insulin are usually obtained several hours or, occasionally, as has been reported, from three to four days after the time of injection.

DISADVANTAGES OF PROTAMINE INSULIN

1. Because of its slow absorption and action, protamine insulin compound cannot control the hyperglycemia of the high carbohydrate diets advocated today or the increased hyperglycemia caused by such diabetic complications as acidosis, coma, infections or gangrene.

2. Protamine insulin, being slow acting, may involve the physician in the error of giving too frequent injections or too large doses in his effort to reduce quickly the blood sugar in a patient with severe or moderately severe diabetes. He may find that he has produced cumulative effects having such serious consequences as a continuous mild hypoglycemic reaction or one sufficiently severe as perhaps to prove fatal in advanced heart disease.

3. Patients on protamine insulin, aware of its unfavorable action—such as its cumulative effects—may become self conscious or fearful of its slow-acting hypoglycemic reaction. This may cause them to eat more or less continuously at the first sign or symptom of uneasiness, which may not infrequently be a hypoglycemic reaction. Then again they may fall into a mild mental confusion and, not infrequently, into unconsciousness without much warning.

4. After protamine insulin is given, the prolonged insulin effect may continue when perhaps not much insulin action is desired—at the completion of absorption of the meal. Thus, normally, increased insulin secretion and action is desired after meals during its absorption; less is desired after its absorption. When much insulin secretion and action are desired during absorption of the meals, protamine insulin is too slow or insufficient; when less is desired on completion of absorption of the meal, protamine insulin may be too rapid or too excessive. Perhaps a patient for some reason is forcibly detained in some locality, which makes it impossible for him to obtain his required proportioned meal. What effect will protamine insulin have on him, especially when he knows that he has had a protamine insulin injection the night before and that a hypoglycemic reaction is possible? It would probably aggravate his mental state and help the simulation of hypoglycemic symptoms.

5. To use two different preparations of insulin and to inject the two separate preparations at different times of the day in relation to the absorption of the food may be confusing to diabetic patients.

6. Protamine insulin is unstable after six months.

ADVANTAGES OF PROTAMINE INSULIN

1. With one injection of protamine insulin when the patient retires, the blood sugar—as shown by our experiments during the resting period or the interval on retiring and arising—is slowly reduced, indicative of the delayed, slow, prolonged but continuous insulin action. This effect will avoid the necessity of awakening the patient who previously required an early morning dose of ordinary insulin at from 3 to 4 a. m.

2. When protamine insulin is prescribed as an aid to ordinary insulin in severe or moderately severe diabetes

24. Leary, Timothy: Experimental Atherosclerosis in the Rabbit Compared with Human (Coronary Atherosclerosis), Arch. Path. 17:453 (April) 1934.

it will more completely oxidize and reduce the marked hyperglycemia of the food than the single ordinary insulin.

3. Such combined insulin therapy (ordinary and protamine insulin) will frequently reduce the total number of units per day, shorten the period of insulin therapy and further increase the well being as also the resistance of the patient, as already shown by our experiments.

4. Surgical wounds as well as infections respond better on the combined insulin therapy.

CONCLUSION

1. Since protamine insulin is inadequate to oxidize the rapidly absorbed dextrose of the meal, it should not be prescribed alone but only as an aid to ordinary insulin. Together they form an ideal insulin therapy in diabetic patients requiring large doses of ordinary insulin. Protamine insulin, if indicated, should be given on retiring and if necessary after breakfast, immediately following the ordinary insulin, which is given within from fifteen to twenty minutes after meals. Between meals the dextrose of the meal that escaped oxidation of the ordinary insulin may be oxidized by the slow, continuous action of the protamine insulin. This combined form of insulin therapy approaches more nearly the natural insulin secretion and action in oxidizing the increased blood sugar caused by the absorption of the carbohydrate of the meal than probably any single insulin preparation so far advocated.

2. This combined insulin therapy, ordinary insulin and protamine insulin, is advocated in:

- (a) Any type of diabetes requiring large doses of ordinary insulin.
- (b) Preoperative and postoperative cases.
- (c) Acidosis and coma cases.
- (d) Patients with marked fluctuations of blood sugars.
- (e) Elderly diabetic patients with advanced sclerosis of the cardiovascular system—though in these cases the greatest care should be exercised.
- (f) Cases complicated with infections.

3. Fasting blood sugar estimation (before breakfast) alone, as practiced by the majority of physicians, is no complete reliable index to the progress of the patient's diabetic condition or oxidizing power of carbohydrate.

4. A blood sugar estimation two hours after meals gives a better index to a patient's oxidizing power.

5. It is advisable, therefore, in order to obtain a better index to the patient's oxidizing power of carbohydrate, as well as his progress, to obtain a fasting blood sugar estimation as well as one after meals, i. e., a two hour interval. The latter examination should be repeated in preference to the blood sugar estimation before eating of the meal at various intervals, so as better to estimate and adjust the insulin dose and diet. This will help to obviate much of the blood sugar fluctuation and insulin reaction and to control better the metabolic state of the diabetic patient. It will also be more convenient for the patient to come after he has had his breakfast instead of before.

6. With the combined insulin therapy (ordinary insulin and protamine insulin) much will be accomplished; i. e., a better and more complete oxidation of the hyperglycemia of the food resulting in nearer to normal sugar curve after meals, a smaller likelihood of disturbances of cholesterol metabolism, a better glycogen storage in liver and muscles and, hence, an improvement in their rhythmic function. This will

result in a better metabolic equilibrium and, in all probability, help in further delaying the period of inception of premature arteriosclerosis.

7. Patients should be hospitalized before attempting the use of protamine insulin. The purpose of course, in addition to other factors, is to test their reaction and susceptibility to the compound.

8. Considering the advantages as well as the disadvantages of protamine insulin and ordinary insulin, I feel that ordinary insulin therapy, if properly administered in relation to dextrose absorption, is still the rock foundation of insulin therapy in diabetes and superior to protamine insulin, especially in those on high carbohydrate diets. The combined insulin therapy (ordinary and protamine insulin) has better helped to solve the problem of reducing the marked hyperglycemia of the food than any single insulin preparation advocated today. Such reduction of the food hyperglycemia approaching the normal curve will result in delaying premature arteriosclerosis, help to prolong the span of life and period of usefulness, and increase resistance to infection.

9. If a diabetic patient is responding favorably with small doses of ordinary insulin after meals that maintain a blood sugar that is within the normal level two hours after meals, it is not advisable to use protamine insulin.

1315 Pine Street.

INCIDENCE OF CORONARY SCLEROSIS AMONG PHYSICIANS

AS COMPARED WITH MEMBERS OF OTHER
OCCUPATIONS

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It has long been believed that the incidence of coronary sclerosis was higher in certain vocations than it was in others. Writers formerly observed that it was relatively rare in the public wards of hospitals as compared with the private wards. Osler observed that it was not a condition affecting the working classes. Colbeck concluded that it was uncommon among blacksmiths, soldiers and other laborers. Attention has been called to the importance of stress, strain and worry as predisposing causes of this disease. It has been described as a disease of the "intelligentsia." Several writers have called attention to its prevalence among physicians, and it has even been described as the "disease of doctors." Some writers have expressed the opinion that it was evidence of eminence and that if a physician acquired the disease it was proof that he had reached the height of professional success. In a series of cases reported by Osler, a large proportion of the patients were physicians. Many members of the medical profession have been victims of coronary sclerosis. Some of the distinguished members of the profession who have succumbed to this disease are John Hunter, Charcot, Nothnagel and Pepper. Others who recently have been victims are Martin, Howard, Saylor, Manges, McVicar and Funk.

This study consists of a comparison of the incidence of coronary sclerosis among physicians, bankers, lawyers, clergymen, laborers and farmers among the clientele of the Mayo Clinic. I examined the consecutive

clinical records of 307 physicians, 300 bankers, 304 lawyers, 306 clergymen, 306 laborers and 308 farmers and compared the incidence of coronary sclerosis in each group. There were thirty-three instances of coronary sclerosis among the physicians, sixteen among the bankers, fourteen among the lawyers, fourteen among the clergymen, eight among the laborers and eight among the farmers (table 1). The criteria for the diagnosis were the same in all the groups. Therefore I feel that the error in diagnosis should be the same in all groups. The average age of the patients, which was about the same for all groups, was 52.8 years for the physicians, 51.5 for the bankers, 52.8 for

dence (12.8 per cent) in the age decade 60-69 years. It should be kept in mind, however, that when the entire series of patients is divided into subgroups according to occupation and age there are only relatively small numbers of cases from which to calculate rates, and these are therefore subject to considerable statistical variability. The figures given are intended only to provide a general comparison of the incidence rates for the members of various occupations studied at different decades of life.

COMMENT

It is interesting to speculate why there is a much greater incidence of coronary sclerosis among physicians than among the other groups. I fully appreciate that in any study of this nature the figures and comparisons are subject to considerable statistical error, but the rate of incidence is so strikingly different in the various groups that I believe the difference is significant. For the group as a whole the highest incidence of coronary sclerosis is found among the physicians. In this group it is more than double what it is in any other occupation. It is four times as great among physicians as it is among laborers and farmers, and it is about twice as great among bankers, lawyers and clergymen as it is among laborers and farmers.

One might argue that the groups of patients studied here do not give a fair representation of the various groups of patients as they actually exist in various localities. This may be true, and this criticism may be made of the patients of any hospital or clinic because they are somewhat specialized and selected groups, and the percentages of members of the various occupations that constitute the clientele of the clinic may be different than the percentages as they actually exist.

There is another factor which may have made a difference in the results obtained here. That is, the physician is more concerned about his heart than are members of the other groups, and he is likely to seek an examination on less provocation than do the members of the other groups. This may be partially true and

the lawyers, 52.2 for the clergymen, 50 for the laborers and 53.1 for the farmers. The average age for the different groups is about the same, with the exception of the laborers, and I do not believe that the difference in the average age of the patients in this group is significant. The fact that the individuals in this group were slightly younger than were the others may partially explain why the incidence of coronary sclerosis is less in this group.

I have given the incidence rates (percentage of total patients who had coronary sclerosis) by decades of age to 70 years or more (table 2). For the entire series of 1,831 patients it is interesting to note that the incidence of coronary sclerosis increases steadily with age to old age. In the age group 20-29 years there were no cases of coronary sclerosis. For the age period

TABLE 1.—Incidence of Coronary Sclerosis According to Occupation

Occupation of Patients	Clinical Records Studied	Incidence of Coronary Sclerosis	
		Cases	Per Cent
Farmers.....	308	8	2.5
Laborers.....	306	8	2.6
Clergymen.....	306	14	4.6
Lawyers.....	304	14	4.6
Bankers.....	300	16	5.3
Physicians.....	307	33	10.7

TABLE 2.—Incidence of Coronary Sclerosis According to Age and Occupation

Age of Patients, Years	Physicians			Bankers			Lawyers			Clergymen			Farmers			Laborers			Total		
	Coronary Sclerosis			Coronary Sclerosis			Coronary Sclerosis			Coronary Sclerosis			Coronary Sclerosis			Coronary Sclerosis			Coronary Sclerosis		
	Number	Number	Per Cent	Number	Number	Per Cent	Number	Number	Per Cent	Number	Number	Per Cent	Number	Number	Per Cent	Number	Number	Per Cent	Number	Number	Per Cent
20-29.....	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
30-39.....	46	1	2.2	37	0	0	15	0	0	35	0	0	43	0	0	45	0	0	221	1	0.5
40-49.....	62	4	6.5	100	4	4.0	114	3	2.6	89	1	1.1	81	1	1.2	117	1	0.9	563	14	2.5
50-59.....	106	14	13.2	93	5	5.4	88	6	6.8	106	4	3.8	91	3	3.3	95	2	2.1	579	34	5.9
60-69.....	66	10	15.2	57	6	10.5	75	3	4.0	59	7	11.9	63	2	3.2	39	5	12.8	359	33	9.2
70 or more.....	22	4	18.2	13	1	7.7	12	2	16.7	17	2	11.8	20	2	6.7	10	0	0	104	11	10.6
Total.....	307	33	10.7	300	16	5.3	304	14	4.6	306	14	4.6	308	8	2.6	306	8	2.6	1,831	91	5.1

30-39 years the rate was 0.5 per cent, for the period 40-49 years it was 2.5 per cent, for 50-60 years it was 5.9 per cent, for 60-69 years it was 9.2 per cent, and for the age period 70 years and more it was 10.6 per cent. When the individual occupation groups were considered separately, it is seen that at every decade of age the greatest relative incidence occurs among physicians. The bankers and lawyers come next in order, after that come the clergymen, and lastly come the farmers and laborers. This ordering holds only generally; at particular decades of age there are exceptions. Notably the laborers show a large relative inci-

it is possible that this factor may be partially responsible for the greater incidence of coronary sclerosis among physicians. However, there is another factor which I believe will at least partially, if not completely, offset this influence, and that is the fact that at the clinic we examine a great number of physicians each year who come to Rochester for other reasons than their health, such as to visit clinics, observe operations, do special work and accompany patients. This would not be true of the other groups.

Just why should the incidence of coronary sclerosis be so high among physicians? I believe the following

is at least a partial explanation: It has long been recognized that stress, strain, intensity of work and mental worries are factors in the production of coronary sclerosis. A physician's schooling is long and intensive compared with that of the average banker and business man. Undoubtedly a doctor has used up a great deal of nervous energy by the time he has finished school. Secondly, the nature of a physician's work is much more strenuous, and he has not only the responsibility of health but oftentimes of life itself in his hands. A physician's routine work, which includes ordinary obstetric cases with their complications, broken legs, severe cardiac diseases, scarlet fever and diphtheria among children and pneumonia among the aged, and the responsibility of the surgeons, which is probably greatest of all, is actually or nearly as intense as that of the banker when there is a run on his bank. In other words, what is a crisis for the banker and business man is more or less routine for the physician.

I believe that one can reasonably conclude from this study that occupation does influence the incidence of coronary sclerosis, that the incidence is lowest among those who do manual labor and highest among those who do mental work, and it would seem that it is highest of all among physicians.

PROSTIGMIN AS AN AID IN THE DIAGNOSIS OF MYASTHENIA GRAVIS

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Our object in this communication is to demonstrate the value of prostigmin as an aid in the diagnosis of myasthenia gravis. In the course of the study this drug was used with immediate but transient improvement in nine cases of the disease, and with neither subjective nor objective changes in fourteen cases of various neurologic disorders. The value of this drug in the treatment of these patients will also be discussed.

In recent years interest in myasthenia gravis has been stimulated by the discovery of new therapeutic agents and by metabolic studies. Walker¹ in 1934 reported the improvement that resulted from the subcutaneous injection of physostigmine salicylate. This drug was tried because it was thought that the disease might be due to a curare-like poisoning of the motor nerve endings or the myoneural junctions. Feb. 8, 1935, Walker demonstrated before the Clinical Section of the Royal Society of Medicine the improvement that occurred in one case with prostigmin, an analogue of physostigmine. In April 1935 she² reported this case. After a subcutaneous injection of 2.5 mg. of prostigmin, ptosis and ophthalmoplegia disappeared within five minutes. The maximum effect was reached in one hour, and there was a gradual return to the previous state over a period of from six to eight hours. Prostigmin was considered superior to physostigmine because of a less depressing effect on the heart, the less frequent occurrence of nausea and vomiting, and the safety of administration of larger doses. In March 1935

Laurent³ described improvement in seven cases with 2 cc. of prostigmin subcutaneously. He suggested that prostigmin might help in the diagnosis of early and slight cases. In May 1935 Pritchard⁴ reported seven cases treated with prostigmin. His results were similar to those noted by Walker.

Shortly after the present report had been submitted for publication, Viets and Schwab⁵ described a method of using prostigmin as a diagnostic test in myasthenia gravis. In five patients with the disease a rapid improvement took place in the symptoms and signs, while seven patients with other disorders showed only a slight response to the drug. Three cc. (1.5 mg.) of prostigmin and 0.6 mg. of atropine sulfate were injected simultaneously. Control injections with physiologic solution of sodium chloride gave no response. In a second report, by Viets and Mitchell,⁶ further experience with the use of the drug is presented. They have now tested eighteen patients with myasthenia gravis and twenty-seven patients with other diseases such as progressive muscular dystrophy, recurrent ophthalmoplegia, progressive bulbar palsy and postencephalitic Parkinson's disease. The technic which they use is as follows: The patient is given 3 cc. of prostigmin with 0.6 mg. of atropine sulfate and the objective and subjective improvement in muscle power is tested at the end of ten and thirty minutes and one, two, four, six and eight hours. The response is graded by 0 indicating no change, 1 slight, 2 moderate, 3 marked and 4 complete improvement. Estimating both subjective and objective response on this basis at each test, a total score of 56 is possible. In the eighteen patients with myasthenia gravis the average test score was 30, and in the other conditions 1. The injections were given intramuscularly.

Hamill and Walker⁷ reported the use of the drug in bulbar palsy, amyotrophic lateral sclerosis, alcoholic neuritis and traumatic neuritis. Some change was noted but it was less dramatic than that in myasthenia gravis.

Everts⁸ administered prostigmin in two cases of myotonia congenita with a pronounced myasthenic syndrome, one case of alcoholic polyneuritis in which recovery had been slow, two cases of postencephalitic Parkinson's disease in which myasthenia was a factor, a case of facioscapulohumeral myopathy, and one of amyotrophic lateral sclerosis. He stated that all showed some improvement, but no details are given as to the doses of the drug or to the type, degree and rapidity of the response.

The following is a brief abstract of nine cases of myasthenia gravis in which prostigmin caused definite improvement.

CASE 1.—L. K., a Negro girl, aged 17 years, single, was in the ward from Aug. 27 to Oct. 13, 1935. Her family history was negative and her past history was good. One month before admission there was difficulty in chewing food. One week later ptosis, thick speech, regurgitation of water through the nose, transient diplopia, and weakness of the arms developed. Physical examination showed bilateral ptosis, more marked on the left; weakness of the right lateral rectus; nystagmus when she looked to the side, up or down; weakness of the jaw muscles bilaterally; bilateral facial weakness, more marked on

3. Laurent, L. P. E.: Clinical Observations on the Use of Prostigmin in the Treatment of Myasthenia Gravis, *Brit. M. J.* 1:463 (March 9) 1935.

4. Pritchard, E. A. B.: The Use of Prostigmin in the Treatment of Myasthenia Gravis, *Lancet* 1:432 (Feb. 23) 1935.

5. Viets, H. R., and Schwab, R. S.: Prostigmin in the Diagnosis of Myasthenia Gravis, *New England J. Med.* 212:1280 (Dec. 26) 1935.

6. Viets, H. R., and Mitchell, R. S.: The Prostigmin Test in Myasthenia Gravis, Second Report, *New England J. Med.* 215:1064 (Dec. 3) 1936.

7. Hamill, P., and Walker, M. B.: The Action of Prostigmin (Roche) in Neuromuscular Disorders, *J. Physiol.* 84:36 P (May 13) 1935.

8. Everts, W. H.: The Treatment of Myasthenia Gravis by the Oral Administration of Prostigmin, *Bull. Neural Instit. of New York* 4:523 (Dec.) 1935.

From the Medical Clinic of the Johns Hopkins Hospital. We are indebted to Dr. Thomas R. Boggs for permission to use the City Hospitals cases, and to Dr. Allen F. Voshell for the Kernan Hospital case.

1. Walker, Mary B.: Treatment of Myasthenia Gravis with Physostigmine, *Lancet* 1:1200 (June 2) 1934.

2. Walker, Mary B.: *Proc. Roy. Soc. Med.* 28:759 (April) 1935.

the left, and weakness of the arms. She had the typical myasthenic electrical reaction. The Wassermann reaction was negative. The spinal fluid, urine and blood were normal. She was given subcutaneously 1.5 mg. of prostigmin and 0.6 mg. of atropine sulfate. Within ten minutes she was able to open her eyes wide and in twenty minutes the lips could be closed tight. She smiled and ate her lunch with ease. Diplopia disappeared. After thirty minutes the patient was laughing and expressed the desire to walk around. One hour later she was seized with violent abdominal cramps, which were relieved by more atropine sulfate. The beneficial effect gradually wore off after the first hour, and seven hours later her condition returned to its previous state. She was given 25 mg. of ephedrine sulfate and 7.5 Gm. of aminoacetic acid twice a day. On two further occasions 1 mg. of prostigmin produced striking improvement, and on a third occasion 0.75 mg. was given with only slight improvement. On discharge her condition was a little improved.

For ten months following discharge she did fairly well on aminoacetic acid and ephedrine. Her second admission was from March 24 to May 13, 1936. For two months before, the symptoms gradually increased. A few days before she contracted an infection of the upper respiratory tract and there was a more rapid exacerbation of symptoms. April 13, 1936, she was begun on prostigmin by mouth, 30 mg. three times a day. Combination of prostigmin with either aminoacetic acid or ephedrine did not seem to increase its effectiveness. For the following eight months there was distinct improvement. She was seen several times, and diplopia and slight ptosis were the only abnormalities remarked on. The effect of prostigmin orally became apparent about thirty minutes after it was taken and gradually decreased over two to three hours. Unless it was taken she was unable to eat or to be up. Her third admission was from Feb. 7, 1937, to the present time, and this was initiated by a cold accompanied by a generalized maculopapular rash. It is of interest that the first admission was preceded by a cold and a similar rash and that as a young child she had measles. During the first several days in the hospital there were frequent attacks of severe dyspnea during which respirations rose to 80 a minute. These attacks were promptly relieved by prostigmin, 1.5 mg. subcutaneously. They became less frequent, and now she is well maintained on prostigmin orally and ephedrine.

This represents a case that was improved for eight months by oral prostigmin and in which the acute episodes were satisfactorily controlled by this drug subcutaneously.

CASE 2.—L. L., a white man, aged 51, married, a farmer, was in the ward from Sept. 20, to Oct. 13, 1935. The family history was negative and the past history was good. For seven months there was blurred vision, for six and a half months diplopia and drooping of the right lid, and for six months drooping of the left eyelid. For five months his voice tired after he talked for from five to ten minutes; there was difficulty in swallowing toward the end of the meal, progressive weakness and fatigability, anorexia and constipation. All symptoms were more marked after exertion and improved after rest. He lost 30 pounds (13.6 Kg.) after the onset of the present illness. Physical examination showed bilateral lower facial weakness and loss of muscle tone. There was marked ptosis of both lids and complete paralysis of all eye muscles except the left lateral rectus. Tendon reflexes weakened rapidly on repeated stimulation. There was a typical myasthenic electrical reaction. The Wassermann reaction was negative. The spinal fluid, blood and urine showed no abnormalities. He was given 1 mg. of prostigmin and 0.6 mg. of atropine sulfate subcutaneously. Within three minutes ptosis decreased and in ten minutes the lids could be opened wide. In ten minutes the forehead could be wrinkled, and subjectively the heavy dull feeling around the eyes disappeared. Before the injection the sternocleidomastoid muscle began to weaken after twenty faradic stimulations. Ten minutes after the drug was injected the muscle contracted eighty times before weakening and in fifteen minutes more than 100 maximal contractions were obtained. A normal control showed weakening after 100 stimulations. The patient was given aminoacetic acid and ephedrine, but on discharge there was no improvement.

He was again seen in November 1936, at which time he still had severe symptoms. Prostigmin, 30 mg. three times a day by mouth, was given, but after three months of this treatment he did not notice any improvement in his symptoms.

CASE 3.—H. N., a white man, aged 64, married, merchant, was in the hospital from June 10 to July 15, 1935. He had enjoyed excellent health until Jan. 20, 1935. At that time he noticed diplopia, which was soon followed by bilateral ptosis, difficulty in swallowing, abnormal fatigue of the voice and weakness of the legs, arms and neck. He was better in the morning and worse at night, and exertion made the symptoms more marked. Physical examination showed bilateral ptosis and marked restriction of all the extra-ocular movement. The muscles of the face, jaw and neck were weak. After he counted to fifty his voice grew nasal. There was difficulty in swallowing. There was no anemia. The Wassermann reaction was negative. The urine showed a faint trace of albumin. The course was afebrile. June 11 he was placed on 25 mg. of ephedrine sulfate and 10 Gm. of aminoacetic acid three times a day. This was discontinued June 20. He was given from 1 to 2 cc. of prostigmin three or four times daily for three days. The response at first was very favorable. There was increased ability to swallow, to talk and to perform extra-ocular movements. The beneficial results decreased with the continued use of the drug, however, and for that reason its administration was discontinued. He was discharged unimproved and five months later died at home.

CASE 4.—M. A., a white woman, aged 33, single, whose first admission was from March 19 to July 10, 1931, had a negative family history and an excellent past history. Her present illness began three weeks before admission with the sudden development of diplopia. The past history was entirely negative for myasthenic symptoms. Physical examination showed a divergent squint with weakness of the left internal rectus and slight ptosis on the left. The pupils reacted to light and in accommodation. There was a slight left facial droop. The visual fields were normal. The Wassermann reaction was negative. Examination of the blood, urine and spinal fluid revealed no abnormalities. While she was in the ward the course was afebrile with a slight tachycardia. At this admission the picture was not entirely clear, and she was discharged with the diagnosis of (?) encephalitis, (?) myasthenia gravis.

From July 15, 1931, to Oct. 19, 1932, she was seen at frequent intervals in the neurologic clinic. During that time the left internal strabismus remained practically constant. The left ptosis varied. Ptosis developed on the right. At times there was a slight facial weakness. She stated that at times her voice was weak toward evening, and that on one or two occasions she regurgitated fluids through the nose. There was a slight but steady increase in general weakness. From June 21 to Oct. 19, 1932, she was given ephedrine sulfate, 25 mg. three times a day. During this time a typical myasthenic reaction was obtained on stimulation of the sternocleidomastoid muscle. She was lost sight of from Oct. 19, 1932, until her second admission, Oct. 22, 1935. During this time she had been receiving no ephedrine and had been fairly well. During this period there were attacks appearing from four to five times a month which were characterized by increasing weakness, difficulty in speaking and swallowing, and increase in diplopia. These symptoms were apparently brought on by exertion but also occurred spontaneously. Each attack lasted for several days. One week before the second admission she contracted a cold and five days later there was marked weakness, swallowing was very difficult and speech disappeared entirely. The afternoon of admission she began to gasp for breath. On examination she was very poorly nourished and poorly developed; she was sitting up in bed, her breathing was rapid and shallow, and she was using the accessory muscles of respiration. The facial muscles were weak and toneless. There was bilateral ptosis and weakness of the left internal rectus. Complete aphonia and generalized muscular weakness were present. The deep and superficial reflexes were sluggish and tired easily on repeated stimulation. There were many large rhonchi throughout both sides of the chest and an area of bronchovesicular breathing beneath the left scapula. The temperature was 102 F., the pulse 104 and the respiration rate 36. She was immediately given 2 mg. of prostigmin and 0.6 mg. of atropine sulfate subcutaneously. Within five minutes the respirations were stronger. In ten minutes she was able to cough up mucus. In fifteen minutes there was a noticeable decrease in ptosis and she was able to whisper. In twenty-five minutes she talked in a weak voice and was able to

swallow liquids. After two hours ptosis increased again, and the voice and respirations became weaker. Over the next forty-eight hours she was given from 1.5 to 2 mg. of prostigmin thirteen times. The effect at first lasted from four to five hours, but later the duration of the action was much shorter, so that injections were necessary every one to two hours for relief of the extreme respiratory difficulty. She was also given 15 mg. of ephedrine sulfate three times a day and 20 Gm. of aminoacetic acid daily. Despite prostigmin, ephedrine, aminoacetic acid and supportive measures, she died from what appeared to be respiratory paralysis forty-eight hours after admission.

CASE 5.—A white man, aged 29, married, a farmer, who was admitted to the Johns Hopkins Hospital from July 13 to July 17, 1936, and whose past health was good, about a year before admission began to have difficulty in enunciating, and this progressed until his speech became almost unintelligible. At times food was regurgitated through the nose. There was some weakness of the extremities and he tired easily.

The general physical examination was negative. There was slight ptosis of the left lid, which increased when the lid was held open more than a few minutes. The jaws were so weak that the patient had to hold up the mandible with his hand. There was slight bilateral facial weakness. The soft palate and pharynx were weak, and the voice was nasal. The tongue could not be protruded for more than a moment, and then only the tip extended beyond the teeth. There was some weakness in abduction of the arms at the shoulders. No atrophy or fibrillary twitchings were seen. Sensation was everywhere normal. The reflexes were intact.

Faradic stimulation of the left deltoid and sternomastoid muscles caused fatigue after ten feeble contractions. Galvanic reactions were much better, prompt, and not suggestive of a reaction of degeneration.

The patient was given subcutaneously 1.5 mg. of prostigmin and 0.6 mg. of atropine sulfate. Within five minutes there was decided improvement. Ptosis of the left lid disappeared, speech improved, the jaw could be closed firmly, the tongue could be protruded freely, and the left arm could be held firmly in abduction. The nasal voice persisted.

The patient was discharged on aminoacetic acid 10 Gm. three times a day, and prostigmin 30 mg. three times a day, both to be taken orally. The diagnosis seemed clearly to be myasthenia gravis.

CASE 6.—A white man, aged 53, complained of drooping of the right eyelid and of weakness. For about five weeks there was occasional diplopia. For three weeks there were gradual drooping of the right eyelid and weakness of the arms and legs. For two weeks there was difficulty in mastication and for three days in swallowing. All these symptoms were increased by activity and decreased by rest.

The general physical examination was essentially negative. There was marked ptosis of the right eyelid. The right eye was divergent, could not be moved medially, and could be turned upward only slightly. The left eye moved medially very little. There was generalized weakness, worse in the left hand. The weakness increased on repeated effort and improved on rest. Sensation was normal. There was no atrophy or fibrillary twitching. The reflexes were intact. Electrical stimulation of the right sternomastoid muscle gave a myasthenic response.

Prostigmin 1.5 mg. and atropine sulfate 0.6 mg. were injected subcutaneously. Within five minutes there was complete disappearance of the ptosis, marked improvement in the extra-ocular movements, and increase in the strength of the jaw and hand muscles.

The patient was discharged on prostigmin 30 mg. and ephedrine sulfate 25 mg., both orally, three times a day.

The diagnosis of myasthenia gravis was quite definite. The symptoms were much improved for a few weeks with the medication prescribed. However, after a few weeks the drug lost its effect and hypodermic injections were begun. Finally, even these gave no relief of symptoms and the patient died about three months after his first visit to the hospital.

CASE 7.—A white man, aged 45, complained of drooping of the eyelids. The past health was excellent. For seven months the right eyelid dropped, and for five months there was similar difficulty with the left lid. The ptosis was not constant, was increased by activity, and was relieved by rest. He did not complain of diplopia.

There was moderate ptosis of both lids. The ocular movements were almost all lost, there being only slight deviation with strong effort. The neurologic examination was otherwise negative.

Electrical stimulation of the right sternomastoid muscle gave a normal response.

Prostigmin 1.5 mg. and atropine sulfate 0.6 mg. were injected subcutaneously. Within five minutes ptosis disappeared and the extra-ocular movements were fairly well performed.

The patient was treated for a year with ephedrine sulfate 25 mg. three times a day by mouth. There was little improvement or progression in the ocular muscle weakness. Weakness did not develop in other muscles.

This represents a case in which the clinical impression of myasthenia gravis was confirmed by the prostigmin test but not by electrical reactions. The stimulation was probably tried on a muscle not involved by the myasthenic process.

CASE 8.—A white man, aged 47, was admitted twice to the Johns Hopkins Hospital for muscular weakness. His past health was good. His first admission was from Feb. 18 to March 18, 1935. Four and a half years before, double vision and weakness of the left leg began and continued with varying severity. Since then the right eyelid had drooped and there had been generalized weakness increased by activity.

The general physical examination was negative. There was slight ptosis of the right eyelid. The left eye could not be adducted beyond the midline. The voice weakened on counting 150 rapidly. Muscle strength in general was good, but the muscles tired easily. The clinical impression was myasthenia gravis, but there was some doubt about the diagnosis.

A myasthenic response was obtained on stimulation of the right sternomastoid muscle with the faradic current.

For a month after discharge he took aminoacetic acid and ephedrine without improvement. Muscular weakness increased so that he became bedridden, and he developed difficulty in swallowing and talking. On our advice he began taking prostigmin, 0.5 mg. subcutaneously each day. After an injection he stated that he could sit upright after fifteen to thirty minutes and felt much stronger for from two to three hours.

The second admission was from April 19 to May 14, 1936. At that time, in addition to the foregoing, there was bilateral partial ptosis and neither eye could be moved upward. There was diplopia in all fields. April 19, 1936, he was started on prostigmin 30 mg. by mouth three times a day. There was considerable increase in muscular power, so that he was able to sit up and eat without difficulty. For one day it was omitted and then he could not raise himself from bed. That day he was given subcutaneously prostigmin 1.5 mg. and atropine sulfate 0.6 mg. Within ten minutes he could raise himself from a supine to a sitting position, the ptosis disappeared, and there was much subjective improvement.

Since then he has continued on oral prostigmin. He has found it necessary to increase the dosage to 15 mg. from nine to ten times a day. If he exceeds 30 mg. at a dose, severe abdominal cramps result. If he omits a dose, muscular weakness renders him helpless. He has never been able to become ambulatory.

This represents a puzzling case in which the diagnosis of myasthenia gravis was strengthened by a positive reaction to prostigmin. Treatment with prostigmin orally undoubtedly caused much benefit, but the disease was of such severity that nontoxic doses brought about only partial relief.

CASE 9.—A white woman, aged 44, complained of weakness of the left side of the face and of the muscles of mastication, of about five months' duration. Her past health was excellent. When first seen, the only positive finding was slight weakness of the left facial muscles, involving especially the lower portion of the face. It was thought that she had a left peripheral facial palsy. The eye examination at that time was entirely normal. Five months later she returned complaining of drooping of the right eyelid, double vision and difficulty in swallowing, all increased by activity. At that time there was marked ptosis of the right lid and restriction of all extra-ocular movements. Faradic stimulation of the sternomastoid muscles gave definite myasthenic reactions.

Prostigmin 1.5 mg. and atropine sulfate 0.6 mg. were injected subcutaneously. Within five minutes the ptosis of the right lid disappeared and extra-ocular movements were well performed.

She was given ephedrine sulfate 25 mg. three times a day orally, and there was some subjective improvement. Because of a basal metabolic rate of -21 , thyroid extract 32 mg. twice a day by mouth was administered, but there was no benefit from it. Prostigmin 30 mg. three times a day orally was then tried. It helped the chewing, swallowing and double vision, but its effects wore off in from two to three hours and the patient thought that the muscle weakness was worse then than before the drug was taken. During the time prostigmin was used she developed occasional regurgitation of liquids through the nose. However, in general there was improvement in muscle strength following the use of the drug.

The final series of cases represents a group of various neurologic and muscular disorders in which prostigmin was administered. These cases are recorded in the accompanying table.

Cases in Which Prostigmin Was Administered

Name	Age	Sex	Race	Diagnosis	Prostigmin	Result
M. S.	62	♀	White	Arteriosclerosis; left hemiplegia; N. VI palsy, left	1.5 mg.	Negative
A. L.	65	♂	Negro	N. VII, VIII, IX, XI, and XII rt. palsies	1.5 mg.	Negative
H. W.	26	♂	White	Myotonic dystrophy	1.5 mg.	Negative
R. B.	32	♂	White	Myotonic dystrophy	1.5 mg.	Negative
A. C.	29	♂	White	Alternating strabismus	1.5 mg.	Negative
S. G.	50	♂	Negro	Arteriosclerosis; N. VII palsy, left; hemiplegia, rt. N. VI palsy, left	1.5 mg.	Negative
M. P.	23	♀	White	Muscular dystrophy	1.5 mg.	Negative
G. G.	60	♀	White	Progressive bulbar palsy	0.5 mg. daily for 12 days	Negative
M. K.	18	♀	White	Retrobulbar neuritis; N. III, VI palsy, rt.; multiple sclerosis	1.5 mg.	Negative
C. H.	34	♂	White	Progressive muscular atrophy	1.5 mg.	Negative
C. L.	19	♂	Negro	Acute poliomyelitis with recent paralyses	1.5 mg.	Negative
P. B.	7	♂	Negro	Pseudohypertrophic muscular dystrophy	0.5 mg. for 100 days	Negative
G. M.	40	♂	White	N. VI palsy, rt.; multiple sclerosis	1.5 mg.	Negative

The difficulty in the diagnosis of myasthenia gravis is well illustrated by the following case:

CASE 5.—G. B., a white man, aged 36, married, a farmer, in the hospital from Nov. 19, 1934, to Jan. 20, 1935, had a negative family history, and the past history was excellent. Two years before entry he awakened one morning with a severe generalized headache, giddiness and nausea. He vomited copiously, had a bowel movement, suddenly became weak, and had to be carried to bed. He vomited repeatedly during the day and remained semiconscious. He was unable to open his right eyelid and saw double. After two weeks in bed he recovered sufficiently to be up and around. After that time there was persistent diplopia and impaired extra-ocular movements. There was no increase in the disability after the onset. Physical examination showed exophthalmos and bilateral ptosis, which was more marked on the right. The eyes could not be carried laterally beyond the midline. There was marked limitation of medial and upward movement and inability to move either eye down and laterally. The motion down and medially was good. There was an internal squint of the right eye. The visual fields were normal, and the visual acuity was good. The pupillary reactions were intact. The Wassermann reaction was negative. Roentgenograms of the skull were negative. Examinations of the spinal fluid, urine and blood revealed no abnormalities. The course was afebrile. On one occasion what was regarded as a myasthenic electrical reaction was obtained, but on two subsequent attempts this finding was not confirmed. He was given aminocetic acid, from 10 to 20 Gm. daily, and ephedrine sulfate, 25 mg. three times a day. In

about one month there was improvement of the ptosis. However, a marked squint and diplopia remained. He was seen from time to time and the same eye conditions were always found. Up to the present he had been doing heavy labor and no other myasthenic symptoms or signs had ever developed. May 1, 1935, he was given subcutaneously 1.5 mg. of prostigmin and 0.6 mg. of atropine sulfate. There were no objective changes in the eye signs and no subjective improvement within thirty minutes. He was then given 1 mg. more of prostigmin and after one hour there was still no change. November 1 the test was repeated with 2 mg. of prostigmin and 0.6 mg. of atropine sulfate subcutaneously with completely negative results.

At first it was thought that the patient had a ruptured aneurysm of the circle of Willis. Later, when the myasthenic electrical reaction was obtained, the possibility of myasthenia gravis had to be considered. However, the history of sudden onset accompanied by headache, vomiting and generalized weakness, the failure of development of further myasthenic signs, the complete absence of myasthenic symptoms, and the inability to confirm the electrical reactions threw doubt on that diagnosis. The final clinical impression was that the condition was the result of a bizarre form of encephalitis or of a rupture of a congenital aneurysm of the circle of Willis. Finally, the completely negative results with prostigmin furnish additional evidence that myasthenia gravis was not the cause of the illness.

COMMENT

The diagnosis of myasthenia gravis is in many instances a difficult one. In nine cases in which there was a fairly definite clinical picture the response to the injection of prostigmin was prompt and striking. In one case of doubtful diagnosis there was no response. If myasthenia gravis was present in this case it was in a state of remission. It is possible that the action of prostigmin is effective only during a period of exacerbation. In thirteen cases of other disorders in which muscular abnormalities or cranial nerve palsies were prominent features there was no response. Although this series is small, it suggests that immediate improvement following a single dose of prostigmin occurs only in myasthenia gravis. Consequently the use of this drug seems to be a valuable diagnostic test. Walker¹ suggests that in myasthenia gravis the supply of acetylcholine at the myoneural junction is deficient and that physostigmine and by analogy prostigmin, by delaying the destruction of acetylcholine, compensates for its lack. Pritchard⁴ believes that defective innervation, whether resulting from some disability of the anterior horn cells or from impaired conduction of nerve fibers, should also be corrected by prostigmin. However, in this series this was not found to be the case.

The value of prostigmin as a therapeutic agent has not been definitely established.

The reports in the literature concerning the use of prostigmin in the treatment of myasthenia gravis are conflicting.

Laurent and Walker² have successfully treated cases with small doses of prostigmin given over long periods of time; e. g., 0.5 mg. two or three times daily given subcutaneously. Larger doses were used when more severe symptoms were present. They found that the fatigue after overexertion during the prostigmin effect tends to wear off and that small amounts of ephedrine were helpful in relieving it. No increase in the myasthenic symptoms resulted after the use of the drug in this manner over long periods of time. Wade³ Ver-

9. Laurent, L. P. E., and Walker, M. B.: Oral and Parenteral Administration of Prostigmin and Its Analogues in Myasthenia Gravis. *Lancet* 1: 1457 (June 27) 1936.

10. Wade, H. J.: Treatment of Myasthenia Gravis, *Lancet* 1: 1457 (May 30) 1936.

biest¹¹ and Kostakow¹² also obtained beneficial results by the daily subcutaneous administration of the drug.

Mitchell¹³ found that the treatment of patients outside the hospital by this method was unsatisfactory and that better control of symptoms was obtained by oral administration. A similar view was expressed by Minski and Stokes.¹⁴ Their ambulatory patients were treated with aminoacetic acid and ephedrine. Riven and Mason¹⁵ have limited the use of prostigmin to combating the acute and dangerous manifestations of the disease. Hyland¹⁶ states that the subcutaneous use of prostigmin is impracticable because of the temporary improvement and the method and cost of this means of administration.

The oral use of prostigmin has been found by most observers to be of distinct value. Everts⁸ treated two cases for three months, and normal activity was restored in each one. Thirty milligrams given three times daily was found to be the optimum dose. Laurent and Walker⁹ have also found that prostigmin is active orally. From 25 to 30 mg. gave a result comparable to the subcutaneous injection of 0.5 mg. They were able to obtain a supply of substance 36 of Aeschlimann and Reinert's¹⁷ series, which was given in doses of from 100 to 200 mg. daily over long periods of time with good results. Improvement was first noted from forty to fifty minutes after taking the drug. The intensity of the reaction increases to a maximum at the end of two hours. It remains maximal for from six to eight hours, after which time the effect gradually wears off. They were not able to detect any increase in the myasthenic symptoms after several months of treatment. Mitchell¹³ has treated nine cases of myasthenia gravis with prostigmin by mouth. In every case the improvement has been greater than on any previous medication, including ephedrine, aminoacetic acid and parenteral prostigmin. The average daily amount used was about 90 mg., which was given in from five to six doses. In all nine cases, potassium chloride was used as an adjuvant. In five cases it was thought to enhance the action of the prostigmin, but in the other four no difference was noted. Potassium chloride alone in doses of from 6 to 12 Gm. a day was first used by Laurent and Walther,¹⁸ who found it to be of some value. Minski and Stokes¹⁴ found it to be of no value in prolonging the effect of prostigmin and stated that its use resulted in a notable increase in toxic symptoms. Wade¹⁰ came to the same conclusions.

In 1935 Denny-Brown¹⁹ suggested the use of 20 minims (1.25 cc.) of tincture of belladonna by mouth, followed in twenty minutes by one-sixth grain (0.01 Gm.) of physostigmine salicylate in water, given once daily on an empty stomach. Hyland¹⁶ tried this in sev-

eral cases. In none was it beneficial and in four it was associated with an increase in symptoms and varying degrees of nausea.

In certain cases the use of prostigmin may be harmful. Hyland¹⁶ noted that with each succeeding injection less benefit was observed, and weakness and fatigue of muscles became progressively worse after the effect of the drug had worn off. In case 4 of the present series each succeeding dose had less effect and the patient finally died of respiratory paralysis despite frequent subcutaneous injections of the drug. Laurent and Walker⁹ state that the fatigue subsequent to the prostigmin effect eventually wears off.

In our experience the parenteral use of prostigmin has been quite helpful as a diagnostic test, and in the presence of an increase of symptoms such as frequently accompanies an infection of the upper respiratory tract. We have not attempted to treat patients by this method while they were outside the hospital.

Although the use of prostigmin by mouth is the most satisfactory treatment for these patients at the present time, the results in the present series of cases have not been as completely satisfactory as most of those previously reported. Patient 1 received the drug for eight months with striking improvement in her symptoms. However, the development of an infection of the upper respiratory tract necessitated the resumption of subcutaneous injections. Patient 8 has been taking the drug for eleven months. Definite benefit has resulted but the symptoms are so marked that even while taking 150 mg. of the drug a day he has not been able to be ambulatory. Patient 6 was greatly improved for a few weeks. Then the prostigmin lost its effect when taken orally and hypodermic injections were resumed. Patient 9 has had partial improvement over a period of two months, while patient 2 reported no decrease in the severity of his weakness after several weeks of 100 mg. daily.

Of unusual interest is case 1, in which a maculopapular rash simulating measles developed a short time before each serious exacerbation of the symptoms. A rash of similar description was noted by Rothbart²⁰ in one of his cases, but no other mention of it was found.

SUMMARY

1. The administration of prostigmin to nine patients with myasthenia gravis resulted in a striking immediate improvement in the signs and symptoms.
2. The administration of a single dose of prostigmin in fourteen cases of other neurologic and muscular disorders produced no immediate improvement.
3. Prostigmin seems to be of value in the diagnosis of myasthenia gravis.
4. The oral administration of prostigmin seems at present to be the most valuable therapeutic agent in the treatment of this disease, although some patients are not completely relieved of symptoms by its use.

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The Mystery of Life.—A great deal of cant is talked about the mystery of life, as if life were somehow more mysterious than the rest of Nature. When a man says that one fact of Nature is more wonderful than another, he is at fault. The striking of a match is every bit as wonderful as the working of a brain: the union of two atoms of hydrogen and one of oxygen in a molecule of water is every bit as wonderful as the growth of a child. Nature does not class her works in order of merit; everything is just as easy to her as everything else. —Paget, Stephen: *Confessio Medici*, New York, Macmillan Company, 1931.

MORTALITY FROM CESAREAN SECTION
IN INDIANAPOLIS AND THE
CENTRAL STATES

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Prior to 1929 no study had been made of the results of cesarean section in Indianapolis. In order to compare local work with that in other cities, and particularly with that in the larger maternity hospitals, I made a study of cesarean section in Indianapolis for the preceding year.

The statistics from the four Indianapolis hospitals from Nov. 1, 1927 to Nov. 1, 1928 are given in table 1.

These figures were significant in several ways. In the first place, although not as bad as in some other cities, a maternal mortality of 11.3 per cent was much too high. In each group of nine cesarean sections one mother had died.

TABLE 1.—Statistics from Four Indianapolis Hospitals for One Year

Hospital	Deliveries	Section	Maternal Deaths		Fetal Deaths		Incidence
			Number	Per Cent	Number	Per Cent	
A	741	45	6	13.3	6	13.3	1:16
B	631	29	5	17.2	1	3.4	1:21
C	487	26	1	3.8	2	7.6	1:18.6
D	174	6	0	0	0	0	1:29
	2,033	106	12	11.3	9	8.7	1:19

How much too high this local maternal death rate of 11.3 per cent was is apparent in view of a report published by the Chicago Lying-in Hospital at about the same time of 731 consecutive low cervical sections with a maternal death rate of 1.2 per cent.

TABLE 2.—Indianapolis Statistics for 1934 and 1935

Hospital	Number of Deliveries	Low Cervical						Classic						Totals					
		Number	Morbidity	Maternal Deaths		Fetal Deaths		Number	Morbidity	Maternal Deaths		Fetal Deaths		Number of Sections	Incidence	Maternal Deaths		Fetal Deaths	
				Number	Per Cent	Number	Per Cent			Number	Per Cent	Number	Per Cent			Number	Per Cent		
1934																			
A	911	13	4	0	0	1	7.6	32	12	1	3.1	1	8.3	45	1:20	1	2.2	2	4.4
B	585	5	1	1	20	1	20	9	6	1	11	1	11	14	1:41	2	14	2	14
C	546	3	2	0	0	0	0	19	9	0	0	2	22.2	22	1:24	0	0	2	9
D	907	25	10	1	4	1	4	18	0	2	13.6	0	0	43	1:21	3	6.9	1	2
Totals	2,949	46	16	2	4.3	3	6.5	78	27	4	5.1	4	5.1	124	1:23	6	4.3	7	5.6
1935																			
A	1,055	21	11	0	0	2	9	52	15	1	1.9	3	5.7	73	1:14	1	1.3	5	6.9
B	640	2	1	0	0	1	50	4	4	1	25	1	25	6	1:106	1	16	2	33
C	584	4	2	0	0	0	0	27	15	2	7	4	14	31	1:18	2	6.4	4	12
D	913	27	20	1	5	0	0	19	11	0	0	1	0	46	1:19	1	2.1	0	0
Totals	3,192	54	34	1	1.8	3	5.5	102	45	4	3.9	9	8.8	156	1:20	5	3.2	12	7.6

This study also showed that of six eclamptic patients delivered by section in Indianapolis that year two had died, a maternal mortality of 33⅓ per cent. This high mortality was in keeping with that in Detroit of 42.7 per cent, as reported by Wertz, and Peterson's¹ study of 500 eclamptic patients delivered by section with a death rate of 34.8 per cent, and also with Erdley Holland's² classic review of cesarean mortality in

1. Peterson, R.: Publication of the Department of Obstetrics of Michigan.
2. Holland, Erdley: J. Obst. & Gynaec. Brit. Emp. 28: 358, 1921.

eclamptic patients in Great Britain from 1911 to 1920, in which the maternal death rate had been 32 per cent.

The variation in maternal mortality among the four Indianapolis hospitals from 0 to 17.2 per cent and the variation in incidence of from one section in each twenty-nine deliveries to one in each sixteen deliveries was also significant.

The indications for operation as given on the hospital charts were lacking in many instances and were not convincing in many others. Also in about 95 per cent of the cases the classic technic had been used in spite of long labors, previous instrumentation and the like.

The results of this study were presented before the Indianapolis Medical Society with the hope that such a presentation and the resulting discussion would bring about a better understanding of the indications and contraindications for cesarean section as well as a substitution of a more modern technic, thereby decreasing maternal mortality in Indianapolis.

A similar study has recently been made of cesarean sections done in the same four Indianapolis hospitals for the years 1934 and 1935. The results are given in table 2.

It is apparent from these statistics that better obstetrics prevailed in Indianapolis in 1934 and 1935 than previously. A maternal mortality for cesarean section of 11.3 per cent in 1928 had fallen to 4.8 per cent in 1934 and to 3.2 per cent in 1935.

Several reasons can be given for this reduction in mortality.

First, the more widespread acceptance of the low cervical technic, the superiority of which is reflected by the 4.8 per cent maternal mortality against the 5.1 per cent mortality for the classic in 1934, and 1.8 per cent against 3.9 per cent for the classic operation in 1935.

Second, there were no sections done on convulsive eclamptic patients.

Third, I believe that the knowledge that cesarean section results were being studied each year for presentation before the local society was having a wholesome effect. General surgeons more frequently called for obstetric counsel before section was done. Also it was interesting to note from the charts that most of the sections during the years 1934 and 1935 had been done by the obstetrician instead of by the general surgeon as previously. I believe this last was responsible for the swing to the low cervical operation. However, it is

a reflection on obstetric progress in Indianapolis that the classic operation outnumbered the safer lower cervical 78 to 46 in 1934 and 102 to 54 in 1935.

The comparative safety of the classic versus the low cervical technic is accurate only when comparison is made of the results of the two as done by the same surgeon or group of surgeons. Examples of such a comparison are given in table 3.³

Commenting on Maxwell's report, De Lee⁴ says: "Again the immense superiority of the low incision is proved. How many times must it be proved before the old classical section is discarded?"

Dr. Louis E. Phaneuf⁵ reports 358 transverse cervical cesarean sections with a maternal mortality of 1.9 per cent, with only one death in the last 160 cases.

Also in answer to a letter requesting his latest figures, Dr. Joseph B. De Lee answered, Jan. 17, 1936, as follows:

We have had, from November 1914 up to date, 1,789 laparo-trachelotomies with eighteen deaths. Of these deaths, ten might possibly be ascribed to the operation. The rest are medical

TABLE 3.—Comparison of Safety of Classic versus Low Cervical Technic

	Operation		Maternal Mortality, per Cent
1. Courtiss and Fisher.....	Classic 624	7.8	
	Low cervical 376	1.3	
2. Greenhill.....	Classic 147	4.76	
	Low cervical 874	1.24	
3. Quigley.....	Classic 104	1.92	
	Low cervical 60	0	
4. Maxwell.....	Classic 113	6.1	
	Low cervical 165	0	

deaths. During the same time, we have had 168 classic cesarean sections, with eleven deaths, of which two were ascribable to the operation. The mortalities are 1 per cent and 6.5 per cent respectively.

The Indianapolis work as reported here is considered the first phase of this work. The second phase is the report of material received in answer to 200 questionnaires sent to members of the Central Association of Obstetricians and Gynecologists. This investigation was considered worth while because it would give a reasonably accurate cross section of work done in a large area of the United States and because it represented the work of men limiting their work to obstetrics and gynecology. Also it would furnish another standard with which to compare the Indianapolis work.

Two hundred of these questionnaires were sent out. One hundred and fifty-three replies were received, all of which were filled out completely down to the question asking for statistics of the operator's own cases. Sixty-three of the 153 reported these statistics. Therefore the results as tabulated are compiled from those numbers of returned questionnaires (table 4).

The answers need no comment down to the description of the technic of uterine closure. There were so many variations in this that tabulation or summation was impossible. In the classic technic, most men closed in three layers, the last one being a peritonealizing suture. There was about an equal division between

interrupted and continuous sutures. The suture material ranged from plain number 1 catgut to twenty day chromic number 2 catgut.

In the low cervical technic most men reported a three layer closure. There was about an equal division as to the use of an interrupted or a continuous suture for the first row. Most men used a continuous suture for the second and third layers. There was a marked prefer-

TABLE 4.—Questionnaire with Replies

What anesthetic do you prefer?			
Ether			31
N20+O2			30
Ethylene			62
Spinal			10
Local			14
As preanesthetic medication, do you use?			
Morphine: Yes			35
No			73
Pentobarbital: Yes			43
No			4
Sodium amytal: Yes.....			39
No.....			36
Any other scopalamine			
When possible do you do low cervical instead of classic: Yes.....			133
No.....			18
If low cervical, do you prefer: Longitudinal.....			114
Transverse.....			19
Please describe briefly your technic of uterine closure as to number of layers, interrupted or continuous, and type of catgut used			
Classic:			
Low cervical:			
Type closure of abdominal wall	Running	Interrupted	Type of Suture Material
Peritoneal suture	144	1	Plain no. 1 63
			Plain no. 2 70
Fascial suture	47	8	Plain no. 2
	78	17	Chromic no. 2
Skin suture	76	18	Catgut
	32	7	Silk
Stay sutures	Yes 111	No 29	
If you have compiled any statistics as to your own cesarean section results, please fill in below			
Type	Total Number	Number of Maternal Deaths	Fetal Deaths
Classic	1,504	43	30
Low cervical	3,889	33	106

ence for twenty day chromic number 2 catgut with twenty day chromic number 1 next.

The figures on closure of the abdominal wall need no comment except that the sum total of answers does not total 153 in every case, because all questions were not answered on all questionnaires.

The totals of sections reported of each kind with their accompanying mortalities are given in table 5.

TABLE 5.—Central Association Statistics

Type	Number	Maternal Deaths		Fetal Deaths	
		Number	Per Cent	Number	Per Cent
Classic.....	1,504	43	2.85	30	1.99
Low cervical.....	3,889	33	0.84	106	2.72
Totals.....	5,393	76	1.40	136	2.52

These totals include ninety-seven sections done by me, of which forty-six were of the classic type with four maternal deaths and fifty-one were of the low cervical type with no maternal deaths. There were no fetal deaths. The four maternal deaths among the classic group were due to the following causes: aspiration of vomitus after completion of anesthetic with asphyxia in five minutes; general peritonitis; coronary embolus; pulmonary embolus.

3. Courtiss, Movus, and Fisher, J. C. V.: *Am. J. Obst. & Gynec.* 23: 679 (May) 1932. Greenhill, J. P., *ibid.* 19: 613 (May) 1930. Quigley, J. K., *ibid.* 17: 597 (April) 1929. Maxwell, A. F.: *West. J. Surg.* 42: 14 (Jan.) 1934.

4. De Lee, J. B.: *Year Book of Obstetrics and Gynecology*, Chicago, Year Book Publishers, Inc., 1934.

5. Phaneuf, L. E.: Personal communication to the author.

SUMMARY

1. From Nov. 1, 1927, to Nov. 1, 1928, in four Indianapolis hospitals, the maternal mortality accompanying cesarean sections was 11.3 per cent.

2. In 1934 the mortality rate fell to 4.8 per cent. The rate for the classic technic was 5.1 per cent and for the low cervical it was 4.3 per cent.

3. In 1935 in the same four Indianapolis hospitals the maternal mortality decreased to 3.2 per cent, the rate for the classic operation being 3.9 per cent, while that for the low cervical was 1.8 per cent.

4. Data have been presented representing the cesarean section practice, preference and technic of 153 members of the Central States Association of Obstetricians and Gynecologists.

5. Sixty-three of these members reported 5,393 cesarean sections with a maternal mortality of 1.4 per cent and a fetal mortality of 2.52 per cent.

6. Of these 5,393 operations, 1,504 were classic cesarean sections with a maternal mortality of 2.85 per cent, and 3,889 were low cervical cesarean sections with a maternal mortality of 0.84 per cent.

7. It is apparent from a study of the Indianapolis work and that reported by the members of the Central States Association of Obstetricians and Gynecologists that the low cervical section is the operation of choice.

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THE ANTIGENIC PROPERTIES OF INSULIN

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The establishment of insulin as a complete and soluble protein¹ anticipated its property as an antigen. The allergic reactions that are often associated with its clinical use indicate that it is active in this respect. The greater prevalence of hypersensitivity to insulin preparations when they first began to be generally used as compared to substances now in use is probably to be attributed to the presence of extraneous substances that have for the most part been eliminated with the development of better processes of manufacture. Nevertheless reactions, both general and local, do still occur with the refined substances and present a baffling problem in the treatment of diabetes.

Commercial preparations of insulin are derived from either beef or pork tissues or indiscriminately from both. Studies of cases of hypersensitivity to insulin show that most of them are sensitive to the insulin protein itself, although some show sensitization to the protein of the species from which the insulin was prepared. Aside from their chemical importance these studies are of significance because of their bearing on the specificity of the insulin protein. The type of specificity of a given protein of animal origin is designated, first, by its immunologic relationship to other proteins of the same species and, secondly, by its immunologic relationship to the same protein of other species.

Barral and Roux² found that guinea-pigs sensitized with a saline extract of beef pancreas or with beef

serum did not give anaphylactic reactions with commercial preparations of insulin; nor did insulin sensitized animals react with beef pancreas or with beef serum, although they did react with insulin. They concluded from these experiments that insulin was devoid of either organ or species specificity.

The present report includes a repetition of these experiments under more precise conditions, as well as additional ones planned to find the immunologic relationship of two insulins derived from different species of animals. The preparations used were beef insulin and pork insulin. While neither was actually crystalline material, they were "practically as pure as crystalline insulin."³ Their activity is 20 units per milligram.

Virgin female guinea-pigs were sensitized with 1 mg. each of either of the two insulins, which was injected subcutaneously either in one single dose or in divided doses given over a period of twenty-four hours. The hypoglycemia that resulted was effectively controlled by administering a solution of dextrose by mouth before the injections were made and, at necessary intervals, subcutaneously and intraperitoneally. After a suitable incubation period the uteri of these animals were tested for anaphylactic sensitization with the Schultz-Dale technic.

REACTION OF UTERI SENSITIZED WITH BEEF INSULIN TO EXTRACTS OF BEEF PANCREAS, TO BEEF SERUM AND TO BEEF INSULIN

The extract of beef pancreas was made by grinding the fresh gland with saline solution in a mortar containing sand. The mixture was centrifugated and the supernatant fluid heated to 56 C. for one-half hour. The beef serum was similarly inactivated. Solutions of the insulins were prepared by dissolving them in a small amount of weak alkali, which was rapidly diluted with saline solution. The solutions were then adjusted as nearly as possible to a neutral reaction by adding dilute acid.

Uteri of guinea-pigs sensitized to beef insulin and suspended in the chamber of the Dale apparatus were exposed in turn to the extract of beef pancreas, beef serum and beef insulin. Chart 1 illustrates the type of reactions consistently obtained in this series of experiments. The tracings show that uteri sensitized with purified beef insulin reacted when exposed to this substance but did not react in the presence of beef pancreas protein or beef serum. These experiments indicate, like those of Barral and Roux, that the insulin protein, although obtained from the pancreas, was distinct from the bulk of the protein from this gland. An extract of pancreas must undoubtedly contain insulin protein but probably in such comparatively small quantities that its presence is not detectable with uteri sensitized to the insulin protein. The absence of reaction with beef serum, which is a strongly species specific antigen, shows that insulin is not species specific.

CROSS REACTIONS BETWEEN BEEF INSULIN AND PORK INSULIN

Virgin female guinea-pigs were sensitized with 1 mg. of beef insulin or with the same quantity of pork insulin. The uteri of these animals were tested for sensitization, first with the heterologous insulin and then with the homologous one. In each case there was an active contraction when the uterine strip was exposed to the insulin not used for sensitization. But

From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.

1. A review of the chemistry of insulin is given by Jensen, H.: *Science* 75: 614 (June 10) 1932.

2. Barral, P., and Roux, J.: *Compt. rend. Soc. de biol.* 106: 292 (Feb. 6) 1931.

3. These preparations were obtained from Eli Lilly & Co. by the courtesy of Dr. George H. A. Clowes, who verifies for their purity.

when complete desensitization was obtained to the heterologous protein there was still demonstrable in most instances a small amount of sensitization to the homologous protein. Typical of these experiments are the tracings shown in chart 2. There is, apparently, an antigenic activity in common between the two insulins, but there is also a residuum of specificity inherent to the species. It would appear that the chemical and immunologic properties of insulins are very closely related although, from these experiments, they are not completely identical.

These experimental facts are corroborated by certain clinical observations, although others do not bear them out. Tuft,⁴ who reviews the literature on insulin hypersensitization reported prior to the publication of his article in 1928, cites a case in which severe generalized urticaria and marked subjective symptoms developed following injections of insulin, although previous daily injections over a period of a month or two gave no such reactions. Insulin had to be discontinued and the patient placed on a maintenance nonglycosuric diet. Skin tests made with commercial preparations of insulin from both pork and beef pancreas gave severe reactions, as also did purified recrystallized insulin protein (animal source not given). However, extracts of beef and pork meats gave no reactions. The patient's serum could convey the same type of sensitization to normal skin with the use of the Prausnitz-Küstner technic. Precipitins for crystallized insulin could be demonstrated in the patient's serum ten days after a generalized reaction, although complement fixing and anaphylactic sensitizing antibodies could not be detected. The precipitins disappeared by the fifth week after the reaction and the skin sensitizing properties of the serum disappeared by the fourth month, although the skin sensitivity of the patient was still present at that time. Grishaw⁵ reports an instance of a patient who had local and general reactions with insulin from pork and also from beef, the two supplied by the same manufacturer. Another preparation from beef obtained from a second manufacturer also gave reac-

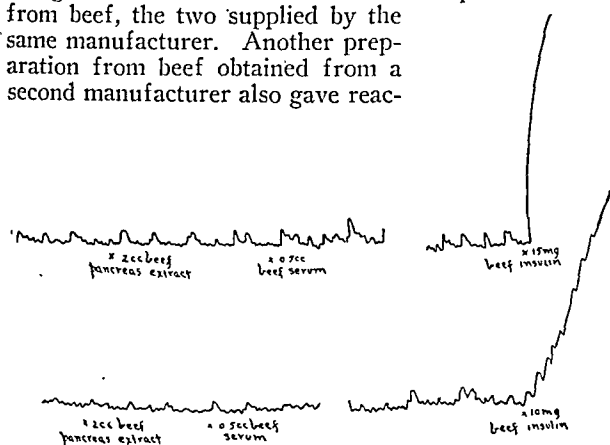


Chart 1.—Uterine tracings of guinea-pigs sensitized with 1 mg. of beef insulin.

tions, although a preparation from a third manufacturer, also obtained from beef, gave no reaction. Acetone, which precipitated the proteins and made the insulin inactive, removed the skin-reacting agent from the filtrate. Campbell, Gardiner and Scott⁶ found that patients sensitive to commercial preparations of beef insulin are also sensitive to crystallized beef insulin.

The question has been raised whether insulins from different species are similar. Tuft⁴ believes that it is another substance of immunologic specificity, since it has been shown that distinct hypersensitiveness to insulin protein irrespective of its biologic source can be present, whereas no sensitivity to the proteins of other tissues of the same animal could be demonstrated. In this respect insulin is similar to the lens protein, casein and the brain antigen. These facts are further in

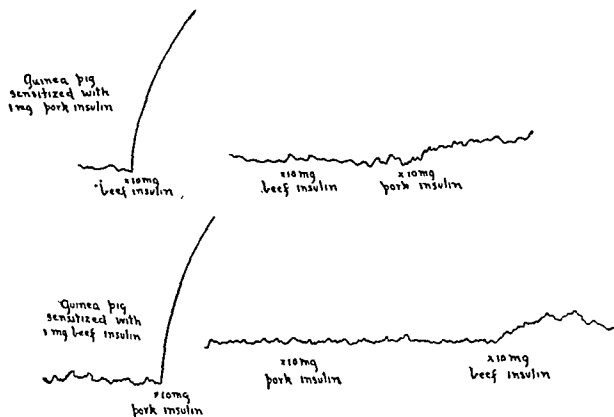


Chart 2.—Uterine tracings of guinea-pigs sensitized with insulin.

accordance with the statement of Wells⁷ that substances of the body with a definite action and a product of cell activity with a given function to perform which is alike in all species, such as trypsin, epinephrine, thyroxine and insulin, should be similar for all species in contrast to the blood and tissue proteins, which have to do with the general metabolism of the species from which they come. Furthermore, chemical analyses of insulin crystals from various sources show a very close similarity in composition and structure. Scott,⁸ however, points out certain discrepancies in the acceptance of the identity of all insulins. In the first place, Dingemans⁹ reports the production of a more powerful but amorphous insulin by adsorption and elution of the insulin, charcoal being used as the adsorbent, although these experiments have not been confirmed by other workers.¹⁰ Secondly, Jensen and his co-workers¹¹ have reported a difference in the sulfur content of hog and beef crystallized insulin, but they admit that the difference may be due to impurities in the hog insulin. He finally points out the reports of patients sensitive to beef insulin who can be given hog insulin without reaction, and vice versa. It is probable that these cases were instances of sensitivity to contaminating proteins rather than to the insulin. Williams¹² reports two such cases showing gastro-intestinal symptoms when hog insulin was given but not reacting when beef insulin was given. Skin tests made with hog protein were positive but with beef protein were negative. Scott, however, does not bear out his criticisms in a comparison of crystalline insulins from the pancreas of ox, hog, sheep and fish. He found that the crystals from all sources had a similar microscopic appearance. Their solubility and iso-electric

7. Chemical Aspects of Immunity, New York, Chemical Catalogue Company, Inc., 1929, p. 72.

8. Scott, D. A.: J. Biol. Chem. **92**: 281 (July) 1931.

9. Dingemans, E.: Arch. f. exper. Path. u. Pharmacol. (Verhandlungen der deutschen pharmakologischen Gesellschaft) **128**: 44, 1928.

10. du Vigneaud, V.; Geiling, E. M. K., and Eddy, C. A.: J. Pharmacol. & Exper. Therap. **33**: 497 (Aug.) 1928.

11. Jensen, H.; Wintersteiner, O., and Geiling, E. M. K.: J. Pharmacol. & Exper. Therap. **36**: 115 (May) 1929.

12. Williams, J. R.: A Second Case of Gastro-Intestinal Allergy Due to Insulin, J. A. M. A. **100**: 658 (March) 1933.

4. Tuft, L.: Am. J. M. Sc. **176**: 707 (Nov.) 1928.

5. Grishaw, W. H.: Allergic Manifestation to Insulin, J. A. M. A. **97**: 1885 (Dec. 19) 1931.

6. Campbell, W. R.; Gardiner, W. J., and Scott, D. A.: J. Clin. Investigation **9**: 28 (Aug.) 1930.

points appeared to be identical. There was a remarkable agreement in the unitage per milligram of solids. The results of chemical analyses for carbon, hydrogen, nitrogen and sulfur show a very close agreement with one another.

Bryce¹³ tested a patient sensitive to insulin with three kinds of insulin, those from pork, beef and sheep, and found that they gave the same kind and size of local reactions. Extracts of pork and beef muscle gave no reactions. Hajek¹⁴ discovered a patient who gave reactions to a commercial preparation of insulin that was apparently made from both beef and pork glands. When an insulin made from beef glands alone was given, no reaction followed. Neither were reactions obtained with extracts of muscle from mutton, lamb, pork, horse, goat and lobster. Karr, Kreidler, Scull and Petty,¹⁵ in studying a case of insulin hypersensitivity, found that the subject they reported gave skin reactions to pork and beef insulins and to a crystalline insulin whose source is not given. The serum of the patient gave a precipitin reaction with an insulin, the type of which is also not mentioned. When this serum is mixed with insulin, the activity of the latter is not affected. A rabbit immunized with insulin produced a precipitating serum but only when the insulin used for immunization was injected, mixed with the patient's serum. Allan and Scherer¹⁶ found during a period of about four years 161 cases of insulin hypersensitivity among 1,907 diabetic patients treated at the Mayo Clinic. Of these, 100 cases were studied as to the control of their reactions. In some instances reactions disappeared when the type of insulin was changed and in others they persisted when insulin of any source was used. The authors believe that in the former case the sensitivity was to contaminating proteins while in the latter the sensitivity was to the insulin protein. However, the patients thought to be sensitive to contaminating proteins did not react to other proteins, such as those of muscle derived from the same animal that provided the insulin. Although a patient may be sensitive to all types of insulin, owing to the presence of a hormonal characteristic protein, the authors believe that the human insulin protein is different from all other types, since they cannot conceive of a patient being sensitive to his own insulin.

Davidson¹⁷ reports a case of diabetes in which a severe urticaria developed whenever insulin of any type, including pork insulin and crystallized insulin, was administered. Sammis¹⁸ cites an instance of severe reaction in a nondiabetic patient given insulin because of underweight. Further tests showed the patient to be equally sensitive to beef insulin, sheep insulin and "synthetic" insulin.

If all insulins are chemically and therefore immunologically identical, the same question of iso-antigenicity arises as with other antigens of similar properties, such as lens protein, casein, brain, fibrinogen and thyroglobulin. If insulin from one species is identical with that of another species, a given animal should be able to form antibodies when injected with insulin from any and all sources, including that from the species of animal injected. This iso-antigenicity has been proved

for all antigens for which there has been demonstrated a nonspecies specificity.¹⁹ Similar experiments with insulin would in all probability give the same results. However, as with fibrinogen and thyroglobulin, a paradoxical situation is encountered in that insulin, in all probability an iso-antigenic substance like these other two proteins, occurs in the circulating blood, which is the condition *par excellence* for the formation of antibodies when ordinary antigens are used under experimental conditions. Yet, as with fibrinogen and thyroglobulin, there is no evidence that antibodies are formed under normal conditions.

Another striking and unexplained fact becomes evident and is discussed in a previous paper on the iso-antigenic properties of casein.¹⁹ There are many thousands of people who receive daily injections of insulin preparations containing a protein capable of stimulating the formation of antibodies. Experimental animals receiving an antigenic protein under similar circumstances develop a high degree of sensitization, as manifested by severe local reactions as well as by general manifestations. Yet of all the people who are treated with insulin, even over long periods of time, only a comparatively few develop sensitization. There seems to be some other condition necessary than the parenteral introduction of antigen alone for the development of sensitization in man which is not necessary in lower animals. The mechanism that ordinarily protects a person from the dire results of repeated administration of an antigen appears to break down in allergic states. It is of interest to note that in a number of the cases of insulin hypersensitization this condition was present at the very first injection of insulin.

One may imagine that this failure of a protective mechanism which operates against the development of iso-antigenic activity might result in hypo-insulinism, deficiency of fibrinogen, the various disturbances of thyroid function, and mental diseases, as an expression of allergy to the corresponding iso-antigenic substances.

SUMMARY

1. Insulin protein is an active antigen.
2. Since insulin protein does not react in common with pancreas protein, its specificity is independent of that of the major constituents of the pancreas.
3. Insulin protein is without species specificity, since it has no antigenic activity in common with other proteins of the same species and which are strongly species specific.
4. Insulin proteins from different animal sources are immunologically closely related.

19. Lewis, J. H.: *J. Infect. Dis.* 55: 168 (Sept.-Oct.) 1934.

A Scribbled Line of Remembrance.—Osler had the God-given quality not only of being a friend with all, high or low, child or grown-up, professor or pupil, don or scholar, but what is more, of holding such friendships with an unforgetting tenacity—a scribbled line of remembrance with a playful twist to it, a note of congratulation to some delighted youngster on his first publication, the gift of an unexpected book, an unsolicited donation for some worthy cause (and giving promptly he gave doubly), a telegram to bring cheer or consolation, an article to help a struggling journal to get a footing, a cable such as his last on the day of his operation to his old Hopkins friends, which was given by them to the press for the benefit of countless others who shared their own anxiety—all this was characteristic of the man whose first thoughts were invariably for others.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

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 14. Hajek, Joseph: *Local Insulin Reaction*, *J. A. M. A.* 96: 193 (Jan. 17) 1931.
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 16. Allan, F. N., and Scherer, L. R.: *Endocrinology* 16: 417 (July-Aug.) 1932.
 17. Davidson, M. T.: *J. Allergy* 6: 71 (Nov.) 1934.
 18. Sammis, F. E.: *J. Allergy* 6: 387 (May) 1935.

Clinical Notes, Suggestions and New Instruments

SUCCESSFUL TREATMENT OF TWO CASES OF FAMILIAL PERIODIC PARALYSIS WITH POTASSIUM CITRATE

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Familial periodic paralysis is a rare disease characterized by abrupt attacks of flaccid paralysis, without sensory loss or psychic disturbances of any sort, and from which recovery is complete. In about 80 per cent of cases the disease is hereditary. It is transmitted by both sexes, but males are affected twice as frequently as females. The etiology of the disease is unknown and postmortem examinations and biopsies have thrown no light on the condition.

The attacks may begin in childhood, but more often at puberty, and may be delayed until the age of 20 or 21. The onset is usually in the early morning and not uncommonly the patient awakes partially paralyzed, and complete paralysis develops. The muscles of the limbs are chiefly affected, the paralysis being as a rule symmetrical, but monoplegias and hemiplegias have been observed. The muscles concerned with speech, vision and deglutition usually escape, but the abdominal muscles are affected and, in severe cases, the respiratory muscles may become so weak that phonation, coughing and sneezing are impossible. The electrical excitability of the affected muscles to all currents is completely lost. Sphincter function is unimpaired, but retention of urine and feces during an attack is the rule. The reflexes are lost in the affected muscles.

The paralysis lasts from a few hours to three or four days, or even longer, and the attacks vary greatly in frequency, occurring every few days or separated by intervals of months or years. Schoenthal,¹ Singer and Goodbody,² Gardner³ and Holtzapple⁴ have given detailed descriptions and reviews of the literature.

The obscurity of the etiology of the disease is reflected in the variety of treatments that have been employed. This brief report details the apparently successful treatment of two brothers, suffering from familial periodic paralysis, with potassium citrate, a form of treatment which has been used before in this disease.⁵

The family history of the two brothers reveals that one maternal uncle and one female cousin suffered from attacks of periodic paralysis. The uncle died during an attack at the age of 35. The cousin is living at the age of 40 and is well except for an occasional minor attack of paralysis. Three siblings have never shown any symptoms whatever of periodic paralysis.

The past histories of both patients were completely noncontributory, and physical examinations revealed no evidence of organic disease.

CASE 1.—M. S., a man, aged 28, unmarried, a university student, began at the age of 14 to have attacks of weakness and slight paralysis of the extremities every few weeks. These attacks ceased during the summer only to return in the fall. At the age of 16 he began to suffer from paralytic attacks of greater severity, involving the trunk and all extremities. These major attacks of flaccid paralysis occurred at intervals of from one to three months. In between them he had many minor attacks, characterized by weakness of one arm or leg, which lasted for only a few hours. During the year before he began treatment with potassium citrate he was admitted to the hospital four times for attacks of major severity, lasting about two days. The minor and major attacks together seriously impaired his university work.

When examined three years ago, during an attack, all the muscles of the trunk, arms and legs were in a state of flaccid paralysis, with total areflexia. The examination was otherwise quite negative.

In June 1934 he began to take 5 Gm. of potassium citrate when the prodromal sensations of weakness and soreness of the muscles gave warning of an impending attack of paralysis. One dose of 5 Gm. would usually abort the attack but, if it progressed, he took 5 Gm. doses every hour until he felt strong again. Under this treatment no attack has progressed to complete paralysis, usually ceasing after a short period of weakness. During the past year he has not lost a single hour from his work as a student.

CASE 2.—E. S., a man, aged 31, a mechanic, brother of M. S., began at the age of 16 to have attacks of moderate weakness of the extremities and a few months later suffered from a major attack, with complete flaccid paralysis lasting forty-eight hours. He continued to have minor attacks, lasting a few hours, except during the summer, and then one year after the first major attack he had a second seizure, with complete paralysis of the muscles of the trunk and extremities. Since the age of 17 he has suffered severely from periodic paralysis, at times averaging a loss of two days a week from work. At one time he had a major attack, with complete paralysis, weekly for thirteen successive weeks.

In 1934 he began to take potassium citrate in 5 Gm. doses at the first sign of an attack, repeating the dose hourly if needed, and during the past two years he has been able to pursue his work as a mechanic without serious interruption. Now and then he suffers a few hours of muscle soreness and weakness, but these symptoms never proceed to complete paralysis as they did before he began treatment with potassium citrate.

The attacks of periodic paralysis are so irregular in their occurrence that neither brother has attempted to use potassium citrate prophylactically; they commence treatment only with the appearance of prodromal symptoms. Sodium citrate is totally ineffective in treating the attacks. The younger brother has used as much as 25 Gm. of potassium citrate in the space of six hours without harmful effect. Occasionally mild catharsis follows the use of several 5 Gm. doses.

SUMMARY

Potassium citrate has controlled the attacks of familial periodic paralysis in two brothers so well during the past two years that both have been restored to economic efficiency.

A NEW METHOD FOR OPENING A CARBUNCLE

CHARLES B. MABRY, M.D., JACKSONVILLE, FLA.

Not long ago I had a series of carbuncles, furuncles or old fashioned boils. Pain forcefully moved in and occupied my attention. A means of combat was sought and one finally found which was so successful that I have been asked to make this relief known.

For many ages the primary reason for a large number of patients consulting a physician has been to seek relief from some form of pain. Much has been written and much more will be written on and because of pain. Its degree, its duration, its intensity, its location and its character have had and will continue to have marked effect on human behavior individually and collectively. In recent years new forms of anesthesia have been produced and many painful procedures have been robbed of their former agony.

A furuncle hurts. It hurts because the tension caused by forces combating the infection together with the infection form a firm, hard mass which presses on hypersensitive nerves. The slightest pressure on this indurated mass causes an alarming pain.

For a long time physicians have been deceiving themselves and their patients by freezing the furuncle with ethyl chloride before incising. We all know how little anesthesia has been accomplished, because the skin only has been anesthetized. It is impossible for the freezing to reach the depths of the indurated mass and anesthetize these deep indurated hypersensitive nerves, because the anesthesia is only a few millimeters deep. The freezing has made the skin tough to cut, so that it has been necessary to use additional pressure on the knife to make an

From the Department of Medicine, Duke University School of Medicine.

1. Schoenthal, Ludwig: Family Periodic Paralysis with a Review of the Literature, *Am. J. Dis. Child.* 48: 799 (Oct.) 1934.

2. Singer, D. H., and Goodbody, F. W.: A Case of Familial Periodic Paralysis with a Critical Digest of the Literature, *Brain* 24: 257, 1901.

3. Gardner, H. W.: A Case of Periodic Paralysis, *Brain* 35: 243, 1912-1913.

4. Holtzapple, G. E.: Periodic Paralysis, *J. A. M. A.* 45: 1224 (Oct. 21) 1905.

5. Mitchell, J. K., Flexner, Simon, and Edsall, D. E.: A Brief Report of the Clinical, Physiological and Chemical Study of Three Cases of Familial Periodic Paralysis, *Brain* 25: 109, 1902.

ample incision. The furuncle having been opened, the patient screams, turns pale, breaks out in a cold perspiration and then faints or vomits or both.

A new method which in my hands has been successful in making this hitherto agonizing procedure almost painless consists of only one new step. The furuncle is frozen as has always been done. A towel clamp now grasps the frozen skin and lifts it up or away from the body while the knife makes pressure



Method of incising a furuncle without causing pain.

inward. The inward pressure of the knife becomes a balancing or counteractive force against the towel hook. This prevents the deep pressure being made over the hard, inflamed hypersensitive mass and eliminates the pain, because the pain has always been caused by the knife pressure on the indurated mass and not by the cutting.

It is astonishing how little the patient is hurt. The furuncle having been drained, a dressing is applied in the usual manner.

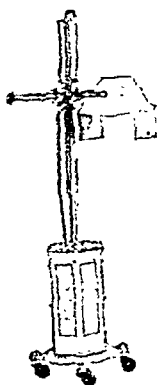
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

BURDICK LA-440 ULTRAVIOLET LAMP ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

The Burdick LA-440 Ultraviolet Lamp is a high intensity quartz ultraviolet lamp for professional use. The burner, Uviarc Mercury Quartz type, is similar in construction to the burners used in other Burdick Ultraviolet Lamps. The electrodes are sealed in by graded fused seals. The burner does not need to be tilted when starting, but merely shaken slightly. It is available for either alternating or direct current. When operating on alternating current, it is self rectifying.



Burdick LA-440 Ultraviolet Lamp.

The reflector is chromium plated and designed to distribute radiation over a treatment area approximately 2 by 6 feet at a distance of 3 feet. The reflector rotates and is adjustable to any position from horizontal to vertical.

The adjustable, counterbalanced 6 foot stand has a 30 inch vertical adjustment and a cross arm having a 25 inch extension with 10 inch adjustment. Moving parts have ball bearings.

The control unit is housed in a hexagonal metal cabinet and includes a meter indicating when the lamp is operating at full intensity. The unit is mounted on 3 inch solid rubber, ball bearing casters.

The ultraviolet radiation generated by this lamp is of a sufficient intensity to produce a first degree erythema on the average skin in a minute and a half at a distance of 30 inches.

The operating characteristics are as follows:

Alternating Current	Direct Current
Line voltage 105-125	Line voltage 105-125
Starting amperage on line 8.0	Starting amperage 6.6
Operating amperage on line 5.0	Operating amperage 3
Normal burner voltage across anodes 164	Maximum burner voltage 72
Operating watts from line 400	Starting burner voltage 15
Cathode burner operating amperage 4.6	
Maximum burner equivalent voltage 50	
Starting burner voltage 18	

The Burdick LA-440 Ultraviolet Lamp has the same burner and reflector as the Burdick Anniversary Model Ultraviolet Lamp, which was accepted by the Council (THE JOURNAL, Dec. 9, 1933, p. 1879). The difference lies in (a) the stand and control, the LA-440 having a 6 foot counterbalanced stand with a 30 inch vertical adjustment and a 25 inch cross arm with 10 inch adjustment; (b) a larger control cabinet, equipped with a meter to indicate when the lamp is at full intensity.

This lamp was investigated in a clinic acceptable to the Council for a period of three months. It was found to be satisfactory for the application of ultraviolet rays in clinical practice.

In view of the foregoing report, the Council voted to include the Burdick LA-440 Ultraviolet Lamp in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. PAUL NICHOLAS LEECH, Secretary.

"SULFANILAMIDE" (THE COUNCIL NAME FOR PARA-AMINO BENZENE-SULFONAMIDE)

A number of pharmaceutical firms have submitted to the Council preparations of para-aminobenzenesulfonamide, which is not protected by patents. Among the proprietary names under which the product is marketed are Prontylin, Stramid, Streptocide, Colsulanyde and Prontosil Album. The Council on Pharmacy and Chemistry has not completed its consideration of para-aminobenzenesulfonamide and therefore has not issued any statement concerning the acceptability or nonacceptability of the product for inclusion in New and Nonofficial Remedies. However, considerable correspondence has been carried on between the Council and several firms with reference to a nonproprietary term for the preparation. One firm suggested the name "Sulfanilamide." Although the Council preferred a shorter term, a representative of this firm, which was the first to submit a nonproprietary product to the Council, pointed out that "Sulfanilamide" denoted the composition and that the name was being used abroad at the present time. Other interested concerns agree to the term. The Council has therefore formally adopted the nonproprietary name "Sulfanilamide" for para-aminobenzenesulfonamide.

RIBOFLAVIN, THE ACCEPTED NAME FOR VITAMIN B₂

Recently there has been submitted to the Council by Hoffmann-La Roche, Inc., a preparation termed Lactoflavin (Synthetic) "Roche." While this product was under consideration by the Council a communication was received from the chairman of the Committee on Vitamin Standards of the American Society of Biological Chemists in which occurred the following statements:

"There seems to be a fairly general agreement among investigators in the field of vitamins who have discussed this question of nomenclature that the name 'flavin' should be given to a water-soluble pigment that has been demonstrated to be necessary for the normal nutrition of the rat and for growing chicks (Lepkowsky and Jukes: *J. Biol. Chem.* 111:119, 1935. Chick, Copping and Edgar: *Biochem. J.* 29:721. György, Paul, *ibid.* 29:741, 1935).

"Dr. H. C. Sherman has used the term 'vitamin G' for this substance and a number of continental European workers have used the term 'vitamin B₂', which was first suggested by Kuhn. English investigators use the term 'flavin.' At a conference of a group interested in this question of nomenclature during the session of the recent American Chemical Society meeting at Pittsburgh, the opinion was unanimous that the term 'flavin' should be used to designate this pigment and that the terms 'lactoflavin,' vitamin G, and 'vitamin B₂' should not be used. I am opposed to the use of the term 'lactoflavin' for a synthetic preparation, which obviously does not come from milk and which appears to have been first isolated from egg white. Ellinger and Koschura (*Ber.* 66:315, 1933) reported in 1933 the isolation from whey of a substance which they called 'lyochrome' having the empirical formula $C_{35}H_{33}N_{32}$. Kuhn, György and Wagner-Jauregg (*Ber.* 66:317, 1933) reported a few days later the isolation of a substance 'Ovoflavin' from egg white; but they proposed no formula. A short time later (*Ber.* 66:576, 1933) the same authors proposed a formula $C_{17}H_{20}N_4O_6$ for this substance, reported decomp. point 265° and also stated that the absorption curve of the substance in water showed maxima at 360 and 440 mμ. Ellinger and Koschura (*Ber.* 66:808, 1933) then reported the isolation of a substance which they called lactoflavin from whey having the empirical formula $C_{10}H_{18}O_{12}N_{14}$. Shortly thereafter Kuhn and his co-workers (*Ber.* 66:1034) reported the isolation of a lactoflavin from milk having the same empirical formula as their previously isolated ovoflavin, melting with decomposition at 267°, and having an absorption curve 'extraordinarily similar' to ovoflavin. The structural formula of naturally occurring flavins has now been established beyond question and the empirical formula is in agreement with that assigned to ovoflavin by Kuhn. It appears therefore that a flavin was first isolated from egg white. Synthetic flavin, which was first prepared by Karrer (*Helv. chim. acta* 17:1010, 1934) and Kuhn, Reinemund and Weygand (*Ber.* 67:1460, 1934), has been shown to be chemically identical with flavin isolated from milk and to have the same biologic value for rats by von Euler, Karrer, Malmberg, Schopp, Benz, Becker and Frei (*Helv. chim. acta* 18:522, 1935), who used the term "riboflavin."

"In assigning the name to the lactoflavin of Hoffmann-LaRoche, Inc., consideration must be given therefore not only to a suitable name for a commercial product but also the name of what is now recognized as being a chemically pure vitamin. The name should therefore be in as good agreement with current vitamin nomenclature as is practicable."

The Council's referee in charge of this product considered this communication and made the following comments:

"As to the suggestions of the chairman of the Committee on Vitamin Standards of the American Society of Biological Chemists, I agree that it would probably be desirable to omit the prefix 'lacto.' Personally, I would much prefer to get away from the implication that the compound is derived from a single source. As has been pointed out, the product was first isolated from egg white. The evidence is rather convincing that the flavins obtained from egg white, milk, liver, pancreas and a number of other sources are identical in structure and manifest the properties of vitamin B₂.

"It should be noted that the term flavin is used in the literature for a variety of synthetic products of similar structure, many of which manifest little or no vitamin activity. As far as I have been able to determine, any compound which contains the isalloxazine nucleus is referred to in the literature as a flavin. Indeed, the term flavins represents a class of compounds, just as do the terms alcohols, ethers, alkaloids, etc. If 'flavin' without a prefix is preferred, perhaps the meaning could be safeguarded by stating that the term applies to the naturally occurring flavin, having the formula $C_{17}H_{20}N_4O_6$, and manifesting the physiological activity hitherto ascribed to vitamin B₂ or G. However, since flavin is a class name, I would prefer a suitable prefix. It seems to me that the compound might be referred to as d-Riboflavin or just Riboflavin. This would indicate that the compound hitherto denoted as vitamin B₂ is a ribose derivative of isalloxazine. This would prevent confusion with many synthetic products also called flavins but which are devoid of ribose."

On recommendation of the Committee on Nomenclature, the Council concurred in these recommendations and voted that the product described as "6,7-dimethyl-9-d,1'-ribityl-isoalloxazin" shall be known as "Riboflavin," so far as products which come under the consideration of the Council are concerned.

The Council has not completed its consideration of Riboflavin "Roche" with a view of acceptance; when it is completed, the description of the product will appear in THE JOURNAL.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION AND FOR GENERAL PROMULGATION, TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

HOOR GLASS BRAND TABLE SALT IODIZED

Manufacturer.—The Barton Salt Company, Hutchinson, Kan.

Description.—Table salt containing magnesium carbonate (1.0 per cent) as a caking inhibitor and potassium iodide (0.02 per cent).

Manufacture.—The salt brine, obtained by returning the water forced into the salt veins by means of drilled wells, is settled to remove turbidity, treated with lime and soda ash to remove the calcium and phosphates, and evaporated. The salt is washed, dried and screened. The magnesium carbonate and potassium iodide are added and the salt is packed in cartons.

Analysis (submitted by manufacturer).—Moisture 0.1%, matters insoluble in water 0.02%, calcium sulfate 0.39%, calcium chloride ($CaCl_2$) 0.02%, magnesium sulfate ($MgSO_4$) nil, magnesium chloride ($MgCl_2$) 0.03%, iron and aluminum oxides nil, sodium sulfate (Na_2SO_4) nil, sodium chloride ($NaCl$) 99.43 and potassium iodide (KI) 0.02%.

Claims of Manufacturer.—For all table and cooking uses. The iodine in the salt aids in preventing simple goiter caused by insufficient iodine in the diet.

(1) SEXTON BRAND GREEN BEANS, WATER PACKED

(2) SEXTON BRAND GOLDEN WAX BEANS, WATER PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—(1) Canned green beans, packed in water. (2) Canned wax beans, packed in water.

Manufacture.—Green or wax beans are mechanically graded for size, hand sorted, washed, blanched, again washed and hand filled into cans. The cans are filled with hot water, sealed and heat processed.

Analyses (submitted by manufacturer).—(Analyses of entire contents including liquid): moisture 95.1%, total solids 4.9%, ash 0.41%, fat (ether extract) 0.7%, protein (N × 6.25) 1.0%, crude fiber 0.51%, carbohydrates other than crude fiber (by difference) 2.3%.

Calories.—0.19 per gram; 5 per ounce.

Claims of Manufacturer.—Choice quality beans packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

RED AND WHITE BRAND FLOUR

Distributor.—Slocum Bergren & Wash Company, Minneapolis.

Manufacturer.—Blair Milling Company, Atchison, Kan.

Description.—A hard winter wheat "long patent" flour; bleached. The same as Blair's Certified Northern Type Flour (Bleached) (THE JOURNAL, Aug. 26, 1933, p. 675).

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SATURDAY, APRIL 17, 1937

GRADUATE TRAINING FOR PHYSICIANS

The education of a physician is not completed in the four years of the undergraduate curriculum. His development is a lifelong process, associated with unremitting toil and assiduous devotion to the most exacting of professions. As the frontiers of human knowledge advance, the slow and laborious progress of the pathfinder is superseded by modern means of advancement. When science displaces speculation, personal trial and error become too costly. In medicine the dissemination of new knowledge is as important as its acquisition. Our rapidly growing understanding of disease demands of the practitioner today a deeper knowledge than was available even a generation ago. Medical education has come to include graduate as well as undergraduate instruction. Examining boards in the medical specialties are requiring more fundamental and more comprehensive training of those who would be recognized as especially qualified in their several fields.

The situation, obviously, is more complicated than in undergraduate education, for the objectives and methods of graduate instruction in medicine are many and diverse. On the one hand are those who desire to fit themselves for the practice of specialties and, on the other, the large group of physicians already in practice who want to keep abreast of the latest advances in medicine. For the first group there must be provided systematic instruction in the specialties and the closely related medical sciences, as well as practical experience in the form of apprenticeships. Such apprenticeships nowadays are usually institutional rather than individual. The correlation and integration of these various types of experience is the practical problem that now confronts medical educators.

For the physician in practice, two main types of instruction must be provided: the systematic courses of the so-called postgraduate type, which can be offered only in the large cities where abundant clinical facilities are available, and the briefer programs of the university extension type, which are brought to the practitioner in his own or some nearby town. These do not

involve any serious interruption of his work. Instruction of this character has been carried on successfully by a number of state societies, sometimes with the assistance of a university faculty or with support from one of the foundations.

An important difference in the economic status of the man just graduated and the physician who has been for a number of years in practice necessitates for each a widely different type of curriculum. The aspiring specialist who has just completed his internship frequently has no capital except his education. Often he is encumbered with financial obligations. For his further education he cannot pay in cash; he must pay in services. This he can easily do, for his time is not yet very valuable. Hence apprenticeships in which the student receives instruction and maintenance in return for his services as a resident or assistant are being developed. The physician who has built up a practice, however, has an economic value which does not permit him to spend long years in service in order to obtain the instruction which he needs but does permit him to pay reasonably for what he wants. His program must be systematically and intensively arranged so as to permit his speedy return to his own community.

The American Medical Association has published much information concerning opportunities for graduate training in medicine, but the rapidly increasing importance of this phase of education now makes necessary a more comprehensive investigation. Experience has shown that personal visits as well as official reports are needed in order to present a true picture of the activities of an educational institution. The Council on Medical Education and Hospitals, therefore, is now undertaking a survey of existing facilities for graduate study and advanced training in medicine. In this way it will be able to present to prospective students, to examining boards and to special societies reliable information concerning graduate medical education.

ACUTE BONE ATROPHY

In 1900 Sudeck¹ described acute bone atrophy developing in the course of a few weeks at the site of an injury or an inflammatory process or at a distance from it and presenting in a roentgenogram a characteristic picture of a patchy bone atrophy. This is accompanied by a rapid wasting of muscles and a corresponding weakness. In cases that arise on the basis of an inflammatory process, various vasomotor and trophic disturbances are to be observed. These include cyanosis, cold and clammy skin, desquamation, atrophy of skin and subcutaneous tissues and delayed healing of wounds. Shrinking of the joint capsule may occur and lead to ankylosis. This condition is not to be confused with atrophy of inactivity; it may indeed develop in a functioning extremity.

1. Sudeck, Paul: *Deutsche med. Wchnschr.* 28: 170 (April 3) 1902; *Die trophische Extremitätenstörung durch periphere Reize*, *Deutsche Ztschr. f. Chir.* 224: 596 (Oct.) 1931.

The pathogenesis of acute bone atrophy is to be seen in the irritating stimuli proceeding from the inflammatory focus as well as in reflex trophic processes. The acute bone atrophy was observed as a complication of a variety of acute and chronic inflammatory diseases of the bones, joints and tendons as well as in fractures, dislocations, contusions, chilblains and burns. In exceptional instances the dystrophic symptom complex may persist as an independent vasomotor disease after the original lesion has healed. Sudeck distinguishes three types of the condition: peripheral, caused by external irritation; neurogenic, caused by injury to the peripheral neuron, and the thrombophlebitic. The essential feature common to all three is the disturbed circulation with consequent impairment of tissue nutrition.

In his histologic studies of sixteen clinical cases of acute bone atrophy and in his animal experiments, Rieder² observed definite signs of a beginning bone absorption before the roentgenogram could reveal them. At this stage there was pronounced hyperemia of the blood vessels of the bone. Bone destruction was characterized by the presence of narrow spindle-shaped osteoclasts. The process of ossification was retarded. The narrowing of the trabeculae, the crowding of the lamellae and the calcium deprivation spoke for inadequate bone formation—bone dystrophy. Bone atrophy resulting from inactivity does not exhibit vasomotor or trophic disturbances. Rieder found that diminished blood supply does not play a part in the production of acute bone atrophy. Ligation of the nutritive arteries of the bone and of the arterial blood supply to the extremity did not affect the bony structure. Determination of the alkali reserve after the method of van Slyke revealed no constant alteration in carbon dioxide or lactic acid content of the venous blood. Determinations of blood calcium in the blood draining the area of artificially induced acute bone atrophy revealed a diminution. The rich sympathetic nerve fiber supply of the bony framework suggests the dominant rôle of the vasomotor system in the so-called massive atrophy of an extremity involving not only bones but the skin, subcutaneous tissues, tendons and synovial membranes.

All forms of acute bone atrophy develop as the result of disturbed circulation and altered local metabolism. These disturbances lead to the loss of balance between bone formation and bone absorption. The stimuli that cause dilatation of the blood vessels likewise cause an increase in osteoclasts.

The treatment of the condition is concerned primarily with the removal of the original lesion and the improvement of the circulation. This is accomplished in fractures by reduction and correct apposition of fragments and immobilization; in cases complicated with bloody extravasation and edema by elevation of the part. Circulation can be further aided by various

physical therapeutic methods, such as alternating hot and cold immersions, rhythmic elevation and lowering of the limb, massage and heat. Cases refractory to conservative measures may be considerably improved by the operation of ramisectomy or sympathectomy.

POTASSIUM CHLORATE IN DENTIFRICES

Potassium chlorate has long been used as a constituent of mouth washes, gargles, dentifrices and extemporaneous preparations for oral conditions such as stomatitis and mercurial poisoning. Pharmacologic and therapeutic considerations have tended largely toward discrediting such usage. The exploitation of pharmaceutical products containing large amounts of this salt, particularly dentifrices and gargles, continues nevertheless with an apparent disregard of the possible hazards to health.

One dentifrice widely sold in the United States contains more than 41 per cent of this ingredient. In Austria a dentifrice containing more than 10 per cent of potassium chlorate cannot be sold without a physician's order. Reports have appeared pointing out the use of such a dentifrice for suicidal intent, and deaths have occurred when large quantities were swallowed. Much has been made of this fact by writers whose ostensible aim is to protect the public, but they have overlooked the fact that the ordinary daily use of such products does not entail the swallowing of large amounts. The Council on Dental Therapeutics will not accept any dentifrice for daily use which contains potassium chlorate.

A. P. Richardson¹ of the department of pharmacology of Stanford University School of Medicine recently reinvestigated the toxic potentialities of continued administration of chlorate for blood and tissues. In other words, Richardson attacked the problem from the more reasonable angle of chronic poisoning with potassium chlorate rather than from the angle of acute poisoning.

Richardson points out that prolonged use of products containing potassium chlorate, which is a not uncommon practice, might result in sufficient absorption of chlorate, particularly when aided by frictional devices, local lesions, such as ulcers and pus pockets, and other inflammatory states, to produce injurious effects on the blood, kidneys, liver and general health. The administration of potassium chlorate has been a common practice in physiologic laboratories to produce damage to the kidneys.

One of the criteria in the past has been that potassium chlorate formed methemoglobin. Richardson found, however, that continued drinking and repeated intramuscular injections of potassium chlorate in doses larger than those which might be absorbed into the system from ordinary usage of preparations containing

2. Rieder, W.: Die akute Knochenatrophie, *Deutsche Ztschr. f. Chir.* 248: 269 (Dec.) 1936.

1. Richardson, A. P.: *J. Pharmacol. & Exper. Therap.* 60: 101 (Jan.) 1937.

this salt failed to produce demonstrable methemoglobinemia, although considerable illness, loss of body weight and wasting of tissues were produced. This is consistent with a slow and inefficient direct action of chlorate on human blood *in vitro*, in which the production of methemoglobin required first a hemolysis or some corpuscular injury. Accordingly, methemoglobinemia is not the first, or an important, phenomenon in chlorate toxicity except just before death or post mortem. This fact may have a bearing in forensic toxicology.

Whereas sodium chlorate produced the same changes as potassium chlorate, sodium chloride did not cause visceral degeneration, thus indicating a specific action due to the chlorate ion and not to the potassium ion, as postulated by previous workers.²

Even though the test animals survived larger amounts of potassium chlorate than is apt to be absorbed, Richardson points out that the traditional use of potassium chlorate in oral preparations lacks a rational or scientific basis. High concentrations locally may produce protoplasmic injury, as indicated by the slowing down of ciliary activity on strips of frog's esophagus. This salt, Richardson therefore concludes, has no real place in the cosmetic armamentarium. A salt action, when desired, may be obtained with ordinary sodium chloride, which can be used virtually with impunity. The inclusion of potassium chlorate in the current edition of the Pharmacopeia deserves to be reconsidered in the light of these experiments.

AMINO ACIDS AS LIMITING FACTORS IN MALIGNANT GROWTHS

The importance of certain dietary essentials for normal nutrition and growth is well established. As the phenomenon of growth is characterized by a rapid synthesis of body tissue, the need for dietary protein as raw material for this synthesis is apparent. More specifically, the demand for exogenous nitrogen for the building of cellular protoplasm is a manifestation of the need for the individual amino acids, which comprise dietary protein and which are made available to the organism by the processes of digestion and absorption. The pioneer work of Osborne and Mendel clearly demonstrated that, while the body is capable of synthesizing most of these amino acids, this is not true of a certain number of these compounds which must be supplied in the diet and which therefore were termed by those investigators "essential amino acids." Our present knowledge of the rôle of the amino acids in nutrition and growth indicates that nine of the known components of the protein molecule cannot under normal conditions be synthesized by the organism and must be supplied in the diet in order that good nutrition may be maintained and normal growth take place.

In view of the fact that there are some amino acids which are essential for the proliferation of normal tissues, the question arises whether these nitrogenous substances are also essential for the proliferation of malignant tissues. This question is of interest and importance because by a determination of the nature of the various chemical factors that are involved in the normal, continual synthesis of cell proteins it may be possible to secure information that will permit control of the growth of neoplasms. In other words, by restricting a diet with respect to a factor that is essential for normal tissue growth, it may be possible to inhibit neoplastic growth. This important problem is being studied in detail in the Division of Pharmacology of the National Institute of Health, United States Public Health Service, and several interesting reports of some of the investigations are now available.¹ As the indispensability of lysine for normal growth has been definitely established, and since an artificial diet deficient in lysine is fairly simple to prepare, the capacity of this amino acid to limit malignant growth has been investigated. A strain of mice was chosen which exhibits spontaneous neoplasms, since results obtained with this type of growth appear to be of greater significance than those obtained with transplanted tumors. The growth rate of each tumor was determined by estimating the cross sectional area in square millimeters from two dimensions of the tumor, the measurements being made twice weekly. At the end of the experiments a careful necropsy was made; routine histologic examination of the tumor also was conducted. All the tumors in the investigations reported were mammary carcinomas of varying histologic structure. It was clearly demonstrated that, on an adequate stock diet, normal growth of young rats occurred and that on the same diet there was rapid growth of spontaneous mammary carcinoma in mice. However, when the diet was rendered deficient in lysine by subjecting the milk powder of the diet to heat under specified conditions, normal body weight gains and malignant growth were greatly inhibited. The same inhibition of normal growth of young mice and the growth of mammary carcinoma in adult mice could be inhibited by a diet in which gliadin, a protein low in lysine, was the sole source of protein. Furthermore, the addition of lysine to either type of diet resulted in a prompt response in both normal and malignant growth. It seems evident from these studies that lysine in utilizable form is an essential factor necessary for the growth of the mammary carcinoma.

More recently, these results have been extended to other essential amino acids.² The indicated importance of glutathione as a factor influencing the proliferation of cells and the activity of certain cellular enzymes

1. Voegtlin, Carl, and Thompson, J. W.: *Pub. Health Rep.* **51**: 1429 (Oct. 16) 1936. Voegtlin, Carl and Maver, Mary E., *Ibid.* **51**: 1436 (Oct. 16) 1936.

2. Voegtlin, Carl; Johnson, J. M., and Thompson, J. W.: *Pub. Health Rep.* **51**: 1689 (Dec. 4) 1936.

2. Ulrich, J. L., and Shternov, V. A.: *J. Pharmacol. & Exper. Therap.* **35**: 1 (Jan.) 1929.

led to a consideration of whether or not, under certain conditions, glutathione can influence the proliferation of neoplasms. As glutathione is a tripeptide composed of cystine, glutamic acid and aminoacetic acid (glycine), and since a diet deficient in cystine and methionine does not permit normal growth of young rats, the Washington investigators have first studied the problem of whether neoplastic growth can be inhibited by feeding adult animals with tumor on a diet deficient in cystine and methionine. It was demonstrated that it is possible by this type of diet to cause a slowing or even cessation of the growth of a typical neoplasm. The same diet inhibits the normal growth of young mice. Furthermore, it was shown that following a period of inhibited tumor growth the administration of either cystine or glutathione causes a marked stimulation of tumor growth. It would seem, therefore, that with respect to the growth-stimulating response to cystine or glutathione there is no essential difference between normal growth of young mice and rats on the one hand and the growth of the spontaneous mammary carcinoma on the other. Although a more detailed study, with perhaps statistical treatment of the data, is desirable, evidence appears to be accumulating which indicates that the proliferation of this typical malignant tumor can be inhibited by diets deficient in certain essential amino acids. It will be of interest to determine whether other types of malignant tumors, especially those induced by carcinogenic substances, behave similarly.

Current Comment

THE EFFECT OF THEELIN ON BLEEDING IN NONHEMOPHILIC PATIENTS

In previous discussions of the use of estrogens in the treatment of hemophilia in these columns¹ it has been pointed out that, although they appeared to be of some value in some instances, the results have been negative in the majority of cases thus far described. Recently the effect of theelin on hemorrhage in four nonhemophilic patients has been studied.² Two of the patients were boys aged 3 and 12 years, one was a man aged 32, and one was a woman aged 39. There was no history indicative of hemophilia in any case and the clotting time of each patient was normal prior to operation: tonsillectomy in three cases, and both tonsillectomy and adenoidectomy in the other. After periods of from ten hours to six days following the operation, however, there occurred bleeding of a diffuse capillary oozing type, which could not be controlled by the usual means. Treatment with theelin was then tried and the result in the four cases was rather striking. Within twenty to thirty-five minutes after the subcutaneous injection of from 25 to 50 rat units of theelin, bleed-

ing ceased and did not recur. Although these observations are indeed suggestive, further careful studies in a larger number of subjects is needed before conclusions are warranted regarding the possible favorable effect of estrogens in the treatment of hemorrhage in non-hemophilic patients.

A COMPLICATION FOLLOWING TREATMENT WITH SULFANILAMIDE

With the introduction into therapeutics of a new drug that produces spectacular results there may be disadvantages that do not become obvious until after the drug has been in use for some time. Experiences with dinitrophenol, beta-aminopropylbenzene, cinchophen and mandelic acid will be remembered. While sulfanilamide at first was believed to be nontoxic, several reports now indicate that sulfhemoglobinemia may be an occasional complication of its use in treatment. Discombe¹ at St. Bartholemew's Hospital, London, calls attention to this in six of seven patients in the hospital who had received more than 5 Gm. of the prontosil brand of sulfanilamide. Three of these patients showed marked cyanosis. The cyanosis which is caused by sulfhemoglobin may be spectacular and alarming, but it does not produce any serious consequences if the drug is stopped as soon as it is noticed. All of the six patients so affected were recovering at the time of Discombe's report. If, however, the total hemoglobin in a case complicated by sulfhemoglobinemia should fall below about 30 per cent (by the Haldane scale), the condition might be dangerous. Cyanosis probably could not occur then; and yet the drug responsible for the sulfhemoglobinemia might be continued until over half of the total hemoglobin present in the patient's blood was changed to the inert form. Under such circumstances, the plight of a patient suffering from a streptococcal infection whose active hemoglobin amounted to about 15 per cent would be hazardous. An interesting fact is that four of the seven patients had been given frequent doses of magnesium sulfate. Another patient had been given two doses of magnesium sulfate, and another received no magnesium sulfate by mouth but did have dressings of sodium sulfate applied to a large gangrenous area. The one patient who did not show any abnormal pigments in the blood even after long continued sulfanilamide treatment had not received any sulfates by mouth or as a dressing. It has been suggested that some connection exists between the development of sulfhemoglobinemia and the use of magnesium sulfate in patients who are under treatment with sulfanilamide; as yet this can neither be confirmed nor denied. Discombe's report suggests that a careful watch for the development of cyanosis is not sufficient precaution against sulfhemoglobinemia; in addition the total hemoglobin should be determined and the patient's blood examined at regular intervals of every few days. The possibility of an unrecognized occurrence of sulfhemoglobinemia should be borne in mind and the administration of magnesium or sodium sulfate to patients under treatment with sulfanilamide probably should be forbidden until more information is available.

1. Hormones in the Treatment of Hemophilia, *Current Comment*, J. A. M. A. 104: 1422 (April 20) 1935.

2. Heinberg, C. J.: Treatment of Hemorrhage in Nonhemophilic Patients with an Estrogenic Substance, *Arch. Otolaryng.* 24: 758 (Dec.) 1936.

1. Discombe, George: Sulfhemoglobinemia Following Sulfanilamide Treatment, *Lancet* 1: 626 (March 13) 1937.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Medical Conference.—A medical conference for general practitioners was held in Oakland recently under the auspices of the Alameda County Institutions Commission, the Alameda County Medical Association, staffs of hospitals in Alameda County and the University of California Extension Division, with Dr. Benjamin W. Black in charge. The program was designed to cover the specialties for the general practitioner.

Hospital News.—The East Bay Hospital Conference, composed of all approved hospitals in Alameda County, held its annual meeting recently at Peralta Hospital, Oakland. The speakers included Drs. Robert T. Legge, Berkeley, on "Control of Venereal Disease," and Benjamin W. Black, Berkeley, "Relationship of the County Hospital to the Voluntary Hospitals."—The Seaside Hospital of Long Beach, Ltd., through the action of its stockholders and board of directors, has changed its corporate status and its name. Henceforth it will be operated as a nonprofit institution, governed by a board of trustees and using the name "Seaside Memorial Hospital."

COLORADO

Spring Clinics.—The Pueblo County Medical Society will conduct its fourth annual spring clinics in Pueblo, May 5-7, under the auspices of the Colorado State Medical Society. The program will include symposiums on syphilis, respiratory diseases of childhood, peptic ulcer and gallbladder. The guest speakers will include Dr. Delmar Foster Bice, Yakima, Wash., on "State Medicine," and Dr. Bradford James Murphy, Colorado Springs, "Mental Hygiene." Other speakers will include the following, all of Pueblo:

Dr. Earle H. Corry, Exfoliative Dermatitis Following Eczema.
Dr. Joseph W. Craighead, The Cardiac Problem.
Dr. Clarence E. Earnest, The Handling of Eye Injuries.
Dr. Scott A. Gale, Treatment of Gynecologic Conditions by Elliott Treatment.
Dr. Harold T. Low, Paralytic Bladder in Spinal Cord Injuries.
Dr. William Senger, Advances in the Treatment of Inguinal Hernia.

CONNECTICUT

Twenty-Five Years' Service.—Dr. Charles J. Bartlett has retired as a commissioner of the New Haven Board of Health after twenty-five years' service, according to *Health*, the department's monthly bulletin. The February issue was dedicated to safe milk, which has been Dr. Bartlett's chief interest during his association with the board. Aged 72, Dr. Bartlett graduated from Yale University School of Medicine in 1895. He is emeritus professor of pathology at his alma mater. In 1918 he was president of the Connecticut State Medical Society and in 1935 of the Connecticut Medical Examining Board and the Connecticut Association of Public Health and Clinical Laboratories. He will continue to serve the board as consultant.

DELAWARE

Society News.—Dr. Eldridge L. Eliason, professor of clinical surgery, University of Pennsylvania School of Medicine, Philadelphia, addressed the New Castle County Medical Society at the Delaware Academy of Medicine, Wilmington, March 16, on the gallbladder.

DISTRICT OF COLUMBIA

Prize to Dr. du Vigneaud.—Vincent du Vigneaud, Ph.D., professor of biochemistry, George Washington University School of Medicine, has received the Hillebrand prize for 1936 of the Chemical Society of Washington. The award, which was presented March 11, was made in recognition of Dr. du Vigneaud's contributions to the chemistry of biologically significant sulfur compounds.

Society News.—The Medical Society of the District of Columbia, Washington, was addressed April 14 by Drs. George B. Tribble on "Nose and Throat Manifestations in the Acute Infections of the Mononucleosis Type" and Ralph M. LeComte, "Renal Tuberculosis."—Sir Henry H. Dale, London, will address the Academy of Medicine of Washington, May 18, on

the chemical transmission of the nerve impulse. The academy adopted a resolution, March 9, in memory of the late Dr. William A. White, who was the first president of the academy.

ILLINOIS

Society News.—Dr. Francis E. Sencar, Chicago, will address the Adams County Medical Society, May 10, in Quincy on "Diagnosis and Treatment of Early Syphilis." A symposium on intravenous medication was presented before the society April 12 by Drs. Milton E. Bitter, James F. Merritt, Warren F. Pearce and Walter M. Whitaker, all of Quincy.—Dr. John J. Hammond, St. Louis, discussed pneumonia before the Madison County Medical Society in Highland, April 2.

Chicago

Dr. Harmon to Direct Program for Crippled Children.—Dr. Paul H. Harmon, instructor in orthopedic surgery, University of Chicago, has been appointed director of the crippled children's bureau of the Illinois Department of Public Welfare, with offices in Springfield, effective April 1. The university has granted Dr. Harmon a leave of absence to organize the state's program for crippled children, which will be financed by social security funds. The project will include a census of crippled children; provision for the care of indigent crippled children, and an orthopedic field nursing and follow-up program.

Rongetti Denied Freedom.—Dr. Amante Rongetti, who is serving sentence for manslaughter in the state prison at Joliet, was denied a writ of habeas corpus by Judge Edwin L. Wilson of the Will County circuit court at Joliet, March 25, it is reported. Dr. Rongetti was received at the penitentiary Feb. 10, 1934. In his first trial, on the charge of causing a death through an illegal operation, Rongetti was sentenced to death, but at the second trial the supreme court committed him to the penitentiary for from one to fourteen years. Feb. 6, 1934, a few days before his entry into Joliet, Rongetti completed a three year sentence in the federal prison at Leavenworth, Kan., for violation of the Harrison Narcotic Act.

Society News.—The Chicago Urological Society was addressed March 25, among others, by Dr. Harry E. Kasten, Beloit, Wis., on "Metastasis in Hypernephroma." Dr. Homer G. Hamer, Indianapolis, will address the society, April 22, on "Diagnosis, Differential Diagnosis and Treatment of Metastatic Infections of the Kidney" and Dr. Vincent J. O'Connor will discuss the etiology of the subject.—The Chicago Gynecological Society was addressed, March 19, among others, by Drs. George C. Finola on "Bone Changes in the Fetus Following the Administration of Dicalcium Phosphate and Viosterol to the Pregnant Mother," and Morris Edward Davis and Sarah A. Pearl, "Biology of the Human Vagina During Pregnancy."—Dr. Edward A. Skolnik addressed the Jewish Physicians Fellowship Club of Chicago and Suburbs March 8 on "A Panoramic View of Syphilis."—The Chicago Orthopaedic Society was addressed, April 9, by Drs. Harry E. Thompson, Tucson, Ariz., on "Chronic Atrophic Arthritis," and Sumner L. S. Koch, "Infections of the Hand in a General Hospital."

INDIANA

Personal.—Dr. Verne K. Harvey, Indianapolis, has been reappointed director of the Indiana State Board of Health.

Child Health Day.—An organization has been perfected in Indiana to carry out a uniform observance of Child Health Day, May 1. The program chairmen of the county medical societies will draw up programs in cooperation with the Indiana Advisory Health Council, the medical association and the state board of health. The work will be coordinated through newspaper publicity, clinics and school health and radio programs, the state medical journal announcements.

Maternal Mortality.—The Indiana State Board of Health early in March launched a campaign to reduce maternal mortality, the work to be financed with funds recently made available under the social security act. The bureau of child and maternal health, which will supervise the project, was created last year with Dr. Howard B. Mettel, Indianapolis, as director. According to the state board's bulletin, in Indiana during the last five years 4,000 women were unattended by physicians at childbirth.

IOWA

Plan for Syphilis Control.—The committee on venereal disease control of the Iowa State Medical Society and the state board of health formulated plans for the state's participation in the national campaign against syphilis at a meeting January 17. The program will include the establishment of clinics for patients unable to pay for private treatment, and

the development of an adequate follow-up nursing service. One phase of the plan became effective February 1, when approved arsenicals and bismuth preparations were made available on request, in minimum doses of twenty each, to patients in the acute infectious stage. After July 1 it will be possible to provide drugs required for adequate treatment of all cases of syphilis, irrespective of economic status, without cost, on request of the attending physician. Pending favorable legislation, it was thought that by April 1 a statewide free laboratory diagnostic service would be available. The plan provides for the distribution of antisyphilitic drugs through local druggists on a carrying charge of 10 per cent.

KANSAS

Society News.—Dr. Claude S. Beck, Cleveland, discussed "Recent Advances in Cardiac Surgery" before the Wyandotte County Medical Society, Kansas City, March 16. The society was addressed March 2 by Drs. William W. Abrams, Kansas City, on "Epilepsy and Its Treatment" and Paul M. Krall, Kansas City, "Physiologic Considerations and Their Possible Relationship to Cardiovascular Disorders."

Medical Service Bureau an Experiment.—The Sedgwick County Medical Society and the Wichita Community Chest have set up, as an experiment, a medical service bureau which will be located in the offices of the county society. Control will be vested in a board of six members, three from the society and three from the Community Chest. The latter has contributed \$1,000 for the services of a case worker and the medical society is furnishing equipment and office space. According to the *Medical Bulletin*, the patient referred to the bureau by either a physician or a recognized social agency will be interviewed by the case worker, who, after a study of the patient's income and his budget requirements, will determine the amount he can pay for medical services over a twelve months period. A report will be given to the physician chosen by the patient and he in turn will arrange a satisfactory fee and plan of payment. The experiment will be conducted for eight months.

LOUISIANA

State Medical Meeting at Monroe, April 26-28.—The annual meeting of the Louisiana State Medical Society will be held in Monroe, April 26-28, under the presidency of Dr. Hiram W. Kostmayer, New Orleans. The public is invited to the meeting of the section on public health and sanitation, when Sir Aldo Castellani will discuss "Preventive Aspects of Medical Service Among the Italian Forces in the Ethiopian War." Guest speakers will include:

- Dr. Warren H. Cole, Chicago, Acute Pancreatitis.
- Dr. Jean Paul Pratt, Detroit, Pelvic Conditions Simulating Appendicitis.
- Dr. Ernest Sachs, St. Louis, Surgery in Brain Tumors.
- Dr. Melvin S. Henderson, Rochester, Minn., Internal Fixation and Fractures of the Neck of the Femur.
- Dr. Andrew B. Rivers, Rochester, Minn., The Cause of Dyspepsia at Various Ages.
- Dr. Reuben A. Brown, Montgomery, Ala., A Practical Tuberculosis Case Finding Program.

MASSACHUSETTS

University News.—Dr. Henry E. Sigrist, Baltimore, discussed "The Role of the Professional Organization in Social Action" before the Boston University Medical Society, March 29.—At a meeting of the Harvard Medical Society in Boston, April 6, Dr. Albert Bessemans, former rector of the University of Ghent, Belgium, spoke on "The Invisible Form of the Syphilitic Virus."—Dr. Louise Eisenhardt, research assistant in pathology, Yale University School of Medicine, New Haven, delivered the annual alumni lecture at Tufts College Medical School, Boston, April 6; her subject was "Observations upon Patients After Operation for Intracranial Tumor."

Scholarships at Harvard Medical School.—With a view to lessening the burden of the worthy student, plans to establish additional scholarships at Harvard University Medical School are under consideration, according to the recent annual report of the dean, Dr. Charles Sidney Burwell. With a student enrolment of 526, the medical school at present gives about \$12,000 a year in scholarships, averaging \$250 each to about fifty students, student fellowships totaling \$1,800 to about six students annually in return for investigative work, and loans of about \$10,000 a year. Under the new prize scholarship plan, at least ten students in each of the four classes would receive the awards. The chief objective of the scholarship system is to relieve the brilliant student from the necessity of supporting himself by outside work, with the stipends adjusted to each person's need. Last year the school admitted a standard class of 125 students from 800 applicants.

MICHIGAN

Society News.—The annual banquet of the Phi Beta Pi Medical Fraternity will be held at the Fort Shelby Hotel, Detroit, April 24.—Dr. Russell D. Herrold, Chicago, read a paper before the Ingham County Medical Society, Lansing, March 16, on "The Criteria of Cure in Venereal Infection."

Hospital News.—A new \$400,000 hospital was opened in Port Huron, February 25, following a dinner given by the St. Clair County Medical Society. The speakers included Drs. Angus McLean, James M. Robb, William J. Cassidy and Alpheus F. Jennings, all of Detroit; Dr. Thomas E. De Gurse, mayor of Marine City, and Dr. Theodore Heavenrich, Port Huron. Dr. Alexander J. MacKenzie, chief of staff of the hospital, was toastmaster. The hospital was financed in part by a PWA grant.

Conferences on Communicable Diseases.—The Wayne County Medical Society, the Detroit Tuberculosis Sanatorium Association and the Detroit Department of Health are sponsoring graduate conferences on tuberculosis and acute communicable diseases. They began March 31 and will continue Wednesday mornings to April 28, at the Herman Kiefer Hospital, Detroit. The speakers include:

- Dr. Joseph S. Baird, Pittsburgh, Scarlet Fever.
- Dr. Henry S. K. Willis, Northville, Tuberculin and Tuberculin Testing.
- Dr. Russell L. Cecil, New York, Pneumonia.
- Dr. Eugene L. Opie, New York, Tuberculosis and the Family.
- Dr. Archibald L. Hoyne, Chicago, Meningitis.
- Dr. Harold N. Cole, Cleveland, Syphilis.
- Dr. Jacob J. Singer, St. Louis, Tuberculosis.

MINNESOTA

Industrial Medical Conference.—A Northwest Industrial Medical Conference will be a feature of the annual session of the Minnesota State Medical Association in St. Paul, May 2-5. The conference will open at the St. Paul Auditorium, Wednesday morning, May 5, with an address of welcome by Mr. F. T. Starkey, St. Paul, chairman, Minnesota Industrial Commission. Other speakers will include:

- Dr. Maxwell J. Lick, Erie, Pa., president, Medical Society of the State of Pennsylvania, Differential Diagnosis in Acute Abdominal Tragedies.
- Dr. Michael L. Mason, associate professor of surgery, Northwestern University Medical School, Chicago, Pitfalls in the Management of Hand Infections.
- Dr. Wallace H. Cole, St. Paul, Hand and Wrist Injuries.
- Dr. Joseph R. Kuth, Duluth, Back Injuries.
- Dr. Winchell McK. Craig, Rochester, Adequate and Inadequate Treatment of Head Injuries.
- Dr. Henry W. Meyerding, Rochester, Fracture Dislocation of the Shoulder.
- Dr. Bertram S. Adams, Hibbing, Injuries to the Thigh.
- Dr. Harry B. Macey, Rochester, New Automobiles and New Fractures.
- Dr. Arthur A. Zierold, Minneapolis, Peripheral Nerve Injuries.
- Dr. Robert F. McGandy, Minneapolis, Review of the Treatment of Burns.
- Dr. Carl C. Chatterton, St. Paul, Certain Derangements of the Knee Joint.
- Dr. Otto W. Yoerg, Minneapolis, Treatment of Os Calcis Fractures.
- Dr. Frank H. Krusen, Rochester, Physical Therapy in Relation to Industrial Medicine.

Dr. Alfred W. Adson, Rochester, president of the state medical association, will act as chairman of a panel discussion concluding the session. Tuesday evening an "industrial dinner" will be held at the Hotel Lowry. The speakers will be Governor Elmer A. Benson, St. Paul; Dr. Adson, and Mr. Voyta Wrabetz, Madison, Wis., chairman of the Industrial Commission of Wisconsin, whose subject will be "Prompt Reporting and Cooperation with Commissions."

MISSOURI

Annual Campaign Against Diphtheria.—Members of the Jackson County Medical Society and the Kansas City department of health are cooperating in their annual campaign against diphtheria. Physicians during April are giving in their offices one injection of alum precipitated toxoid for immunization, charging a fee of \$1 and using material supplied by the department of health. In 1936 there was not a single death attributed to diphtheria, the first time in the city's history.

Fifty Years in Practice.—Dr. Isadore J. Wolf, professor of medicine, University of Kansas School of Medicine, Lawrence-Kansas City, Kan., and president of the staff of Menorah Hospital, was guest of honor at a dinner, March 15, in celebration of his completion of fifty years in the practice of medicine. Dr. Fred Irwig presented Dr. Wolf with a gold watch on behalf of the hospital staff, and speakers included Rabbi Harry H. Mayer and Dr. Logan Clendening. Dr. Clinton K. Smith presided. Dr. Wolf is 73 years of age. He graduated from Ludwig-Maximilians University Faculty of Medicine, Munich, Germany, in 1887.

NEBRASKA

Society News.—A symposium on oxygen therapy was presented at the meeting of the Omaha-Douglas County Medical Society, March 9, by Dr. Fenimore E. Davis, Kansas City, Kan.; Dr. Ford K. Hick, Chicago, and Mr. J. I. Banash, consulting engineer, Chicago.—Dr. John C. Thompson, Lincoln, addressed the Platte-Loup Valley Medical Society in Columbus, recently, on etiology and treatment of cardiac diseases, and Dr. Joseph J. Hompes, Lincoln, showed eye clinics in India in motion pictures.

NEW HAMPSHIRE

Personal.—Dr. Chancey Adams, Concord, has been appointed physician of the state prison, succeeding the late Dr. Edward J. Delaney.

Lectures on Obstetrics.—The New Hampshire Medical Society and the state board of health are sponsoring a series of lectures on obstetrics as part of a statewide campaign to reduce infant and maternal mortality. The centers of instruction are Dover, Manchester, Hanover and Berlin. The lectures are given by Boston physicians.

NEW JERSEY

State Medical Meeting at Atlantic City.—The annual meeting of the Medical Society of New Jersey will be held in Haddon Hall, Atlantic City, April 27-29. General sessions will be held Tuesday afternoon and Thursday morning and sectional meetings Wednesday morning and Thursday afternoon. Speakers at the general sessions will be:

Dr. William P. Thompson, New York, *Indications for Splenectomy*.
Dr. Allen O. Whipple, New York, *Results of Splenectomy in Some 100 Cases*.

Dr. William Hall Lewis Jr., New York, *Medical Aspects of Coma*.

Dr. John Arthur MacLean Jr., New York, *Surgical Management of Coma*.

Dr. James Burns Amberson Jr., New York, *Selection of Treatment for the Tuberculous Patient*.

Dr. Adrian V. S. Lambert, New York, subject not announced.

Dr. Victor Carabba, New York, *Electrosurgical Aseptic Intestinal Anastomosis*.

Dr. Frederick C. Holden, New York, *Again—Maternal Mortality Problems*.

Drs. William Howard Barber and Anthony S. Bogatko, New York, *Failures After Gastrojejunostomy*.

Dr. Emery A. Rovenstine, New York, *Oxygen Therapy by Oropharyngeal Insufflation*.

Drs. Rita V. S. Finkler and Milton Friedman, Newark, *Treatment of Pituitary and Ovarian Dysfunction*.

Dr. Hugh H. Young, Baltimore, subject not announced.

Dr. Stanley R. Woodruff, Jersey City, *Management of Ureteral Calculus*.

There will be a general public health session Tuesday evening at which the speakers will be Drs. Charles Gordon Heyd, New York, President of the American Medical Association; Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., and Howard W. Haggard, New Haven, Conn.

NEW YORK

Dr. Munger Leaves Grasslands Hospital.—Dr. Claude W. Munger, director of Grasslands Hospital, Valhalla, for thirteen years, resigned March 18 to become director of St. Luke's Hospital, New York. Before going to Grasslands, Dr. Munger was director of Blodgett Memorial Hospital, Grand Rapids, Mich., and previous to that, superintendent of Columbia Hospital, Milwaukee. He is at present president of the American Hospital Association. He was graduated from Rush Medical College, Chicago, in 1916.

Society News.—Drs. Francis O. Harbach and I. Harris Levy addressed the Onondaga Medical Society, Syracuse, March 2, on "Carcinoma of the Male Urethra" and "Hypotension" and Dr. William A. Groat gave the first of a new series of reports on "What's New," discussing "What's New in Diabetes."—Dr. John G. Fred Hiss, Syracuse, addressed the Oswego County Medical Society, Oswego, recently, on "Heart Problems in General Practice."—Dr. Edward S. Godfrey Jr., Albany, state commissioner of health, addressed the Rochester Academy of Medicine, April 1, on "The Meaning of Public Health."—Dr. James G. Carr, Chicago, addressed the Niagara County Medical Society, Niagara Falls, recently, on diagnosis and treatment of coronary occlusion.—Dr. Wildridge C. Thompson Jr., Albany, addressed the Ulster County Medical Society at its winter meeting in February on diagnosis and treatment of early syphilis.—Dr. John F. Erdmann, New York, addressed the Medical Society of the County of Westchester, White Plains, March 16, on "The Treatment of Cholecystitis, Cholelithiasis and Cholangitis."

New York City

Long Island Alumni Day.—The annual Alumni Day of Long Island College of Medicine will be held April 24. Dr. Cassius H. Watson, medical director, American Telephone and Telegraph Company, will speak at a morning session and Dr. George H. Gehrmann, medical director of the E. I. du Pont de Nemours Company, Wilmington, Del., at the afternoon meeting. The annual banquet will be at the Columbus Club, with Mr. Grover A. Whalen as the speaker.

Society News.—Drs. Tinsley R. Harrison, Nashville, Tenn., and Alfred E. Cohn addressed the New York Heart Association at a joint meeting with the section of medicine of the New York Academy of Medicine, March 16, on "Cardiac Dyspnea" and "Cardiac Diseases—Nosology and Public Health."

Changes in City Hospitals.—Dr. Edward M. Bernecker of the staff of Metropolitan Hospital on Welfare Island, who recently placed first in a civil service examination for the position of general medical superintendent in the New York City Department of Hospitals, took office March 15. Dr. Bernecker succeeds Dr. Adam Eberle, who has been made senior general medical superintendent. Dr. Emanuel Giddings, medical director of Morrisania Hospital, has been transferred to the same position at Kings County Hospital. Dr. Henry Greenberg, head of Fordham Hospital, succeeded Dr. Giddings at Morrisania and Dr. Stephen H. Ackerman has gone from Coney Island Hospital to Fordham. Dr. Charles G. McGaffin was placed in charge at Coney Island.

Personal.—Dr. Simon Flexner, director emeritus of the Rockefeller Institute for Medical Research, has been elected a trustee of Johns Hopkins University, Baltimore. Dr. Flexner has also been elected a foreign associate of the Academy of Sciences, Institute of France, to succeed the late Emanuele Paterno, Marquis di Sessa, Palermo, Sicily.—Dr. Wilbur A. Sawyer of the Rockefeller Foundation has been appointed a member of the National Advisory Health Council of the U. S. Public Health Service.—Dr. Aaron Arnold Karan, assistant director of the Jewish Hospital of Brooklyn, has resigned to become superintendent of the Workmen's Circle Sanatorium, Liberty, N. Y. Dr. Karan succeeds Dr. Bruno S. Harwood, who will enter private practice in New York.

Unlicensed Practitioners Convicted.—The New York State Board of Medical Examiners reports that Deidrich Meinking, Brooklyn, was convicted, February 27, of practicing medicine without a license and sentenced to three months in the workhouse. Martha Ferdinand at the same time was sentenced to serve three months in the workhouse, with the sentence suspended, and to pay a fine of \$100, in default of the payment of which she was to serve twenty days in the workhouse. Richard Schlessinger was sentenced to three months in the workhouse, with the sentence suspended during good behavior. Benjamin Peltz was sentenced to three months in the workhouse, with sentence suspended during good behavior. Charles H. Worch, a Brooklyn chiropractor, was sentenced to thirty days in the workhouse or to pay a fine of \$250. Raymond E. Hummel, Wantagh, L. I., associated with the "Eastern Chiropractic Institute Clinic," was recently sentenced to six months in the workhouse for practicing without a license. Anna Brauer was sentenced to three months in the workhouse on a similar charge, with the sentence suspended.

NORTH CAROLINA

New Health Officers.—Dr. Walter Raleigh Parker, Woodland, has been appointed health officer of Northampton County to succeed Dr. Marion H. Seawell, Jackson, resigned. Dr. Wayland N. McKenzie, Albemarle, has been chosen to head a new health department in Stanly County to be opened in July. Dr. Harold C. Whims, Waxhaw, has succeeded Dr. Robert M. Bardin, Rutherfordton, as health officer of Rutherford County.

Two New Hospitals.—A new building for Rex Hospital, Raleigh, with a capacity of 200 beds, was opened for inspection by the public March 2. The necessary funds came from a bond issue of \$287,000 and a PWA grant of \$100,000. A campaign for public subscriptions raised \$25,000 for equipment, but it is said that another \$25,000 is needed.—The new Forsyth County Hospital for the Indigent near Winston-Salem has been completed and was open for public inspection March 1-2. There are seven units in the institution, the administration building, hospital ward, a ward for mental patients, dining halls, living quarters, laundry and garage. The hospital unit contains forty-two beds. The total cost of the group was \$230,000, of which \$102,024 was a PWA grant. A new sanatorium for tuberculous patients was recently completed on the county farm at a cost of \$250,000. Dr. Joseph Lindsay Co. Jr., county physician, is executive supervisor of the county hospital.

OHIO

Veteran Physicians Honored.—The staff of Polyclinic Hospital, Cleveland, gave a testimonial dinner March 6 in honor of Dr. Albert F. Spurney, one of the founders of the hospital, who has completed fifty years of medical practice. Dr. Spurney graduated from Western Reserve University School of Medicine in 1887 and was at one time instructor in therapeutics at the Physicians and Surgeons College. At various times he was on the staffs of the Cleveland General, Cleveland City and Saint Luke's hospitals.—Dr. James F. Leeper, McConnellsville, was the guest of honor at a meeting and banquet of the Morgan County Medical Society in January as the oldest practicing physician in the society. Dr. Lee Humphrey, Malta, was toastmaster. Dr. Leeper is 78 years old and graduated from the old Starling Medical College, Columbus, in 1878.

State Medical Meeting at Dayton April 28-29.—The ninety-first annual meeting of the Ohio State Medical Association will be held in Dayton, April 28-29, with headquarters at the Hotel Biltmore. Guest speakers who will address general sessions are:

Dr. Walter C. Alvarez, Rochester, Minn., Useful Hints in the Treatment of Gastro-Intestinal Disease.
Weston A. Price, D.D.S., Cleveland, New Light on Modern Physical Degeneration from Field Studies Among Primitive Races.
Dr. Frank E. Adair, New York, Preoperative Radiation in Operable Cancer of the Breast.
Dr. Fred W. Rankin, Lexington, Ky., The Hopeful Prognosis in Cancer of the Lower Gastro-Intestinal Tract.

Dr. Harry S. Gradle, Chicago, will address the section on eye, ear, nose and throat on "Diagnosis of Early Cases of Compensated Glaucoma." Among Ohio physicians who will appear on the program are:

Dr. Jesse Fremont Bateman, Columbus, The American Disease.
Dr. Samuel O. Freedlander, Cleveland, Total Pneumonectomy.
Drs. Charles A. Doan, Carl V. Moore and Thomas F. Ross, Columbus, Differential Diagnosis and Therapeutic Rationale of the Anemic States.
Dr. William B. Chamberlin, Cleveland, Conditions in Otolaryngology of Interest and Importance to the General Practitioner.
Dr. Clare R. Rittershofer, Cincinnati, Clinical Observations on Anemia in Children.
Dr. William H. Weir, Cleveland, Abdominal Panhysterectomy.

The annual banquet will be held Thursday evening, April 29, with Dr. Howard V. Dutrow, Dayton, as toastmaster. Lloyd C. Douglas, D.D., Los Angeles, author of "Magnificent Obsession" and "Green Light," will be the speaker.

OREGON

Personal.—Dr. Norman E. Irvine, Lebanon, has been elected president of the state board of health. Dr. Irvine was president also in 1933.—Dr. Elsworth L. Gardner, Portland, has been appointed health officer of Lane County, succeeding Dr. Alstrup N. Johnson, who resigned.—Dr. August E. Bostrom, DeSmet, S. D., has joined the staff of the state board of health in Portland.

PENNSYLVANIA

Annual Seminar in York.—The third annual graduate seminar course conducted by the medical societies of York and Adams counties was begun at York Hospital, March 18, and will continue on alternate Thursdays till May 27. The lecturers, all of Philadelphia, are:

Dr. Eldridge L. Eliason, Treatment of Fractures, March 18.
Dr. Edward A. Schumann, Obstetrics, April 1.
Dr. Vaughn C. Garner, Syphilis, April 15.
Dr. Richard A. Kern, Allergy, April 29.
Dr. George Harlan Wells, Pneumonia and Diabetes Mellitus, May 13.
Dr. William D. Stroud, Diseases of the Heart, May 27.

Philadelphia

School Health Director Honored.—Dr. Walter S. Cornell, director of the division of medical inspection in the Philadelphia public schools, was the guest of honor at a dinner February 9 celebrating his twenty-fifth anniversary in that position. Dr. Cornell is 60 years old and graduated from the University of Pennsylvania School of Medicine in 1901. He founded the system of medical inspection in the schools.

Society News.—Dr. Alexander Randall delivered the annual oration of the Philadelphia Academy of Surgery, March 1, on "Observations on the Origin and Growth of Renal Calculi."—William U. Gardner, Ph.D., New Haven, Conn., addressed the Pathological Society of Philadelphia, March 11, on "Influence of Estrogenic Hormones in the Stimulation of Abnormal Growths" and Dr. Helen Ingleby, "Etiology of Plasma Cell Mastitis."—A. Irving Hallowell, Ph.D., associate professor of anthropology, University of Pennsylvania, among others, addressed the Philadelphia Psychiatric Society, March 12, on "Normal and Abnormal Fears in a Native

Indian Community."—A symposium on pernicious anemia was presented at a meeting of the Philadelphia County Medical Society March 24 by Drs. Max M. Strumia, Thomas Fitz-Hugh Jr., Michael A. Burns and William Egbert Robertson.

Pittsburgh

New Building for Mellon Institute.—A new home for the Mellon Institute for Industrial Research will be dedicated May 5-9, to replace the building on the campus of the University of Pittsburgh, where the institute has been for twenty-two years. The new building is nine stories high, though the four lower floors are below ground level. The style is Ionic, with columns around all four sides. It covers most of a city block. Mellon Institute was founded in 1913 by Andrew W. Mellon and Richard B. Mellon, an outgrowth of a trial of the fellowship system at the University of Pittsburgh. Since the beginning in 1911 there have been 1,150 industrial fellowships on 279 subjects of technology. Sixty-four fellowships are operating at present. It is expected that the new building will make possible expansion of present research and the development of new fields, especially in pure science. Edward R. Weidlein, Ph.D., is director of the institute.

RHODE ISLAND

Society News.—Drs. Cecil C. Dustin and Herman C. Pitts addressed the Providence Medical Association, April 5, on "Brucella Infections in Man" and "Sickness Insurance in Foreign Countries" respectively.—Dr. Mario A. Castallo, Philadelphia, addressed the Malpighi Medical Club, Providence, March 30, on "Management of Syphilis and Gonorrhea Complicating Pregnancy."

Building Program at State Mental Hospital.—Nineteen building projects are under way at the State Hospital for Mental Diseases, Howard, as a part of a \$12,000,000 emergency public works program in state institutions. Among the new buildings is the psychiatric clinic to accommodate 120 patients, the medical and surgical building for 135 and a tuberculosis building for ninety. There will also be two new wards for patients with curable mental disorders, two for those with advanced mental disturbances, an administration building, dormitories for men and women employees, a staff house and several cottages for married physicians, and various service buildings. The women employees' dormitory was completed and dedicated in October 1936 and it is expected that other buildings will be finished at intervals during the coming year. Dr. Seth F. H. Howes is superintendent of the state mental hospital.

TENNESSEE

Society News.—Drs. Ola E. Ballou and James Sam Taylor presented papers at a meeting of the Anderson County Medical Society, Clinton, March 1, on diseases of the myocardium.—Dr. Albert Weinstein, Nashville, addressed the Davidson County Medical Society, Nashville, April 6, on "Methyl Chloride (Refrigerator Gas) Poisoning."—Dr. Talbert C. Crowell, Chattanooga, discussed "Influences of Weather on Hay Fever and Asthma Patients" at a meeting of the Hamilton County Medical Society, Chattanooga, April 1.—Dr. Robert B. Wood, Knoxville, addressed the Knox County Medical Society, Knoxville, March 2, on "Nontuberculous Pulmonary Infections."—Dr. Launcelot Minor Blackford, Atlanta, addressed the Washington County Medical Society, April 2, on "Syphilis of the Aorta."

Professors Appointed.—Major George W. Reyer, Medical Corps, U. S. Army, has been appointed professor of military science and tactics with the reestablishment of the medical unit of the Reserve Officers Training Corps at Vanderbilt University School of Medicine, Nashville. Major Reyer was graduated from Vanderbilt in 1917 and has recently been at the Army and Navy General Hospital, Hot Springs National Park, Ark. Dr. Rudolph H. Kampmeier, recently clinical professor of medicine at the Louisiana State University School of Medicine, New Orleans, has been appointed assistant professor of medicine in the Vanderbilt medical faculty. Dr. Kampmeier was graduated from the State University of Iowa College of Medicine in 1923.

VIRGINIA

Society News.—Dr. Russell L. Cecil, New York, addressed the Richmond Academy of Medicine, March 23, on pneumonia.—The Virginia Mental Hygiene Society was organized in February, with Dr. Beverley R. Tucker, Richmond, as president.—Dr. Robert Finley Gayle Jr., Richmond, was elected president of the Virginia Neuropsychiatric Society at a meeting in Richmond in January. Dr. Thomas N. Spessard, Roanoke, was made secretary.

Medical Progress in Richmond.—In connection with a celebration of the two hundredth anniversary of Richmond and the centennial of the Medical College of Virginia, an exhibit is being prepared to show to the public as well as to the medical profession the progress of medicine in Richmond during the city's history. Dr. Wyndham B. Blanton is in charge of the exhibit, which will be set up in the Richmond Academy of Medicine and in the library of the Medical College of Virginia. Individual exhibits will include old and modern sick rooms and operating rooms, photographs of Richmond physicians, old and modern instruments, medical books used in Virginia, medical photography and illustrations. Richmond hospitals and clinics will have booths to show their work and development, and the college itself will have several booths demonstrating its history and its work. The exhibits will open May 15 and continue through September.

GENERAL

Plans to Redraft Pharmacy Laws.—Plans for drafting a modern pharmacy law were announced after a meeting in Washington, January 17, of a committee appointed for the purpose at the annual meeting of the American Pharmaceutical Association in 1936. The draft of the new law will be presented at the next meeting of the association in New York in August. Officers of the state associations and state boards of pharmacy are being requested to give the committee the benefit of suggestions. The committee also announces that it will be pleased to confer with any state that is attempting to amend or rewrite its pharmacy law. The committee has the following members: R. L. Swain, Baltimore, chairman; H. C. Christensen, Chicago; R. C. Wilson, Athens, Ga.; Robert P. Fishel, Trenton, N. J.; A. D. Baker, Denver, and H. V. DeHaven, West Chester, Pa.

American Pediatric Society.—The forty-ninth annual meeting of the American Pediatric Society will be held at The Homestead, Hot Springs, Va., April 29-May 1, under the presidency of Dr. Henry F. Helmholz, Rochester, Minn. The speakers will include:

- Dr. Herman Yannet, New Haven, Conn., Effect of Hyperthermia on Distribution of Water and Electrolyte in Brain, Liver and Muscle.
- Ann S. Minot, Ph.D., Nashville, Tenn., Factors Influencing the Disposition of Fluids Given Intravenously.
- Drs. John A. Bigler, Highland Park, Ill., Laurie M. Hardy and Harry V. Scott, Chicago, Cryptorchism Treated with Gonadotropic Hormone, with Report of 100 Cases.
- Drs. Albert Graeme Mitchell and Josef Warkany, Cincinnati, Ohio, Relation of Endocrine Disturbances to Certain Heredodegenerative Symptoms.
- Dr. Randolph K. Byers, Boston, Tonic Neck Reflexes in Children, Considered from a Prognostic Standpoint.
- Dr. Waldo E. Nelson, Cincinnati, Possibility of Sensitization to Tuberculin.
- Drs. Mitchell I. Rubin and Milton Rapoport, Philadelphia, Cardiac Complications of Acute Hemorrhagic Nephritis.
- Dr. Arthur F. Abt and Chester J. Farmer, M.A., Chicago, Cevitamic Acid Content of Blood Plasma.

Meetings on Industrial Medicine in Detroit.—The Midwest Conference on Occupational Diseases will be held in Detroit, May 3-5, and will be followed by the annual meeting of the American Association of Industrial Physicians and Surgeons, May 6-7. Both will meet at the Hotel Statler. Subjects of the sessions of the conference will be pulmonary diseases in industry, industrial hygiene engineering methods, industrial dermatoses, occupational diseases and the practitioner of medicine. Among the speakers at these sessions will be:

- Dr. Emery R. Hayhurst, Columbus, Ohio, Industry as a Source of Disease.
- Dr. Andrew R. Riddell, Toronto, Ont., Industrial Tuberculosis.
- Dr. Marion B. Sulzberger, New York, Eczematous Dermatoses of Occupational Nature, with Special Reference to Proof of Occupational Origin.
- Dr. Robert T. Legge, Berkeley, Calif., Occupational Diseases and the General Practice of Medicine.

At the meeting of the American Association of Industrial Physicians and Surgeons, of which Dr. Robert P. Knapp, South Manchester, Conn., is president, the speakers will include:

- Dr. James A. Britton, Chicago, Compensation for Occupational Diseases.
- Dr. John J. Moorhead, New York, Trends in Industrial Surgery.
- Dr. Rosco G. Leland, director, Bureau of Medical Economics, Chicago, Economics and Ethics of Medicine.
- Dr. Plinn F. Morse, Detroit, Medicolegal Aspects of Sudden Deaths in Industry.

There will be round table discussions on industrial hygiene, led by Dr. Royd R. Sayers of the U. S. Public Health Service, Washington, D. C., and on industrial medicine and surgery, led by Dr. Otto P. Geier, Cincinnati. The annual banquet will be held Thursday evening, May 6, with Dr. Loyal A. Shoudy, Bethlehem, Pa., as toastmaster.

Winners in National Safety Contest.—New York City won first prize in the fifth annual traffic safety contest conducted by the National Safety Council for the calendar year 1936. In the contest were 1,013 cities. New York was also

first in the group of cities of populations larger than 500,000; Milwaukee was the winner in this group in 1935. First places in other population groups were as follows: Kansas City, Mo., cities from 250,000 to 500,000; Omaha, cities from 100,000 to 250,000; Jackson, Mich., cities from 50,000 to 100,000; West New York, N. J., cities from 25,000 to 50,000, and Wilmette, Ill., cities from 10,000 to 25,000. The judges named a special honor roll of 139 cities that had passed the year without a single traffic fatality. West New York was the largest of these. New York had 838 traffic accident deaths, 122 per cent lower than its 1935 total of 954 and 17 per cent lower than the average total for the three preceding years. Awards in this contest are made with consideration of various factors besides reduction of death rate, such as completeness in accident reporting, maintaining a permanent record of accidents, safe traffic planning and construction, effectiveness of traffic law enforcement, development of child safety and public safety education programs.

Federation of Societies for Experimental Biology.—The annual meeting of the Federation of American Societies for Experimental Biology will be held in Memphis, Tenn., April 21-24, under the auspices of the University of Tennessee School of Medicine and with headquarters at the Hotel Peabody. The federation is made up of four societies: the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics and the American Society for Experimental Pathology. The first morning of the convention will be devoted to a joint meeting of all four groups with the following speakers:

- Dr. Hallowell Davis, Boston, Electro-Encephalograms and Their Interpretation.
- William C. Rose, Ph.D., Urbana, Ill., Further Experiments on the Nutritive Significance of the Amino Acids.
- Dr. Velyien E. Henderson, Toronto, Ont., Humoral Transmission of Nerve Impulses.
- Dr. Leo Loeb, St. Louis, The Biochemical Basis of Individuality.

The physiology program includes section meetings on endocrinology and metabolism, the central nervous system, carbohydrate metabolism, circulation and respiration, the kidney, nerve and general physiology, and a special symposium on coagulation of the blood. A few of the speakers are:

- Dr. Louis N. Katz and S. Rodbard, Chicago, The Role of the Liver in Regulating the Distribution and Rate of the Blood Flow.
- Dr. Charles H. Best, Arthur Charles, Ph.D., and Campbell Cowan, Toronto, Ont., The Administration of Heparin.
- Dr. Herbert S. Gasser, New York, Responses of Nerve to Two Trains of Rhythmic Stimuli.
- Dr. James B. Collip, Hans Selye and A. Neufeld, Montreal, Experimental Diabetes in the Monkey.

Among many speakers on the biochemistry program will be: Leroy S. Palmer, Ph.D., Minneapolis, Biological Assay of Vitamin E; Application to Wheat Germ and Wheat Germ Oil. Alfred Chanutin, Ph.D., and Stephan Ludewig, Ph.D., University, Va., Blood Plasma Proteins in Part. Dr. Frederic W. Schlutz and Minago, Influence of Kidney Secretion upon the Chloride and Base of the Dog During Exercise.

Dr. Rudolf Schoenheimer, New York, Studies in the Intermediate Metabolism of the Fatty Acids with Deuterium as an Indicator.

Papers to be read at the meeting of pharmacologists will include:

- Dr. Sanford M. Rosenthal and Hugo Bauer, U. S. Public Health Service, Chemotherapy of Bacterial Infections with Sulfonamide Compounds.
- Dr. Carl A. Dragstedt and Franklin B. Mead, M.S., Chicago, Further Observations on Peptone Shock.
- Dr. Nathan B. Eddy, Ann Arbor, Mich., Analgesic and Other Effects of Some Carbazoles.
- Dr. Willis M. Fowler and Adelaide P. Barer, Ph.D., Iowa City, Retention and Utilization of Orally Administered Iron.

Addressing the society of pathologists will be the following, among others:

- Drs. Charles A. Doan and Carl V. Moore, Columbus, Ohio, Correlation of Serum Iron, Bone Marrow and Blood Cell Changes Following Specific Therapy in the Macrocytic Anemias.
- Dr. Jesse L. Bollman, Dr. Frank C. Mann and Eunice Flock, Rochester, Minn., Factors Influencing the Fatty Condition of the Liver Produced by Alcohol and a Diet Rich in Fat.
- Forrest D. McCrea, Ph.D., and Harold M. Horack, Durham, N. C., The Effect of Artificial Fever on Experimental Rabies.

The afternoon of Friday, April 23, will be devoted to demonstrations at the university. The annual smoker will be held Thursday evening and the annual dinner Friday evening at the Peabody.

FOREIGN

Congress on Hematology.—An International Congress on Hematology will be held in Münster and Pymont, Germany, May 8-15, with Dr. Viktor Schilling, professor of internal medicine at the University of Münster, as chairman. Dr. Schilling has announced that interested hematologists from the United States will be welcomed at the congress.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 20, 1937.

Toxin Formation in Burns

Extensive burns produce systemic disturbances of which the causation is not well understood. W. C. Wilson, J. S. Jeffrey, A. N. Roxburgh and C. P. Stewart, of the department of surgery of the University of Edinburgh, have made an important investigation, which is reported in the *British Journal of Surgery*. They have clearly shown that toxin is generated in the burned tissues. The stage of acute toxemia begins between six and fifty hours after injury and not infrequently proves fatal about seventy hours after the burn. Clinical and pathologic studies strongly suggest the formation of toxin or toxins in the burned tissue and absorption into the circulation. There is also some evidence from experiments on animals. Recently, however, this view has been questioned.

As long ago as 1876, Avdakoff reported that the blood of a burned animal was toxic to healthy animals. In 1905 Pfeiffer published reports of experiments showing that the urine and blood serum of burned rabbits was toxic. But American experimenters—Underhill and Kapsinow—could discover no significant difference in action between extracts of burned skin and extracts of normal skin or between blood from burned animals and blood from normal animals. The Edinburgh investigators therefore decided that proof of the toxin theory was required. They made an incision in the middle line of the abdomen of rabbits under ether anesthesia, dissected up skin with subjacent platysma muscle as two lateral flaps, applied heat by diathermy to the deep surface of the flaps, and closed the incision. The animals subsequently showed no untoward symptoms. After varying intervals the edema fluid that accumulated was collected and injected into the ear vein of rabbits. Edema fluid removed four hours after the injury was always innocuous. Fluid removed at longer intervals was more and more toxic and at forty-eight hours highly toxic, killing forty of forty-four rabbits. Sometimes convulsions and death supervened within a few seconds of injecting from 3 to 5 cc. In other cases after several minutes muscular weakness, labored respiration, increased heart rate, pallor of the ears and hydriasis developed. The weakness increased, the temperature fell and death occurred after from one to five hours, sometimes preceded by muscular twitchings or general convulsions. Subcutaneous injections were also toxic but the lethal dose was larger. The fluid was found sterile; therefore bacteria played no part in the result. Autolysis of the injured tissue was evidently the mechanism of toxin production. In the fatal cases, fatty degeneration of the liver cells was found.

Precautions Against Air Raids

Precautions against air raids have now become such a topic that they are discussed almost daily in the press. Mr. Geoffrey Lloyd, undersecretary to the Home Office, stated in a reply to a question in the House of Commons that during an air raid the public should as far as possible remain indoors, in a part of their home or place of work that has been adapted as a refuge in accordance with instructions which will be issued. The question of provision of refuges for persons caught in the street when a raid is imminent is under consideration. It is considered that if ordinary safeguards are employed for these, the installation of a filtration plant will not be necessary. Arrangements will be made for detection of poison gas as part of the organization. Every effort will be made to warn the public of the presence of gas, which they may not be able to detect themselves.

A specimen gas-proof room has been fitted up in London by the special air raids precaution committee of the corporation of the city in conjunction with the St. John Ambulance Brigade. The room is open for public inspection daily and experts lecture at frequent intervals on precautions against poison gas. The committee has also issued a pamphlet on the preparation of a refuge room. In the list of material recommended for the furnishing is a wireless set for the information and entertainment of the occupants. The specimen room is hung with blankets tacked to the lintel with wooden strips, and the joints in the window are protected with strips of felt. It is shown how, by pasting three sheets of cellophane inside a window pane, the glass is not likely to splinter if exposed to the concussion of bombs in the street. Cracks in walls and floorboards, mouse holes and so on may be filled with paper soaked in water and squeezed to pulp. A broken window may be made gas proof by nailing an old carpet across the frame. A more elaborate precaution exhibited is a wooden frame, the exact size of the window, covered with wire netting over which a blanket is stretched.

Similar precautions are being taken all over the country. At Eastbourne, a town on the east coast and therefore exposed to raids from the continent, a government expert lectured to a large audience presided over by the chairman of the Air Precautions Committee, who appealed for 650 volunteers to staff first aid posts. All the police have been trained and the second police reserve is now being trained. The town has been divided into nineteen sections, each controlled by a warden elected from among the volunteers. It is proposed to set up first aid posts, so that no one need walk more than a mile when contaminated with gas. All the civilian air raid training is entirely voluntary in England, whereas in Germany it is compulsory, as also is the provision of bomb-proof shelters. Mr. Wilmot, the government expert, said that nothing less than 15 or 20 feet of reinforced concrete would stop a direct hit by a high explosive, and the cost of shelters for the population was prohibitive. But every one could prepare splinter-proof rooms in his own home. In every home, shop and business place there should be gas-proof shelters. A corps of persons known as "gas detectors" is being organized throughout the country whose duty will be to detect gas and inform the authorities.

The government has decided that 300,000 volunteers are to be recruited as wardens, whose duty will be to advise residents on the officially recommended precautions against air raids, to assist in the distribution of civilian respirators, and to help the public both during and after an air raid. It is proposed that every district, singly or in cooperation with its neighbors and in consultation with the police, shall arrange for the organization and training of the air raid wardens. Wardens will operate from fixed posts, of which there will be one for every 500 inhabitants in residential districts and one to every quarter of a mile in industrial and business areas. The Air Raids Precautions Department has asked societies of experts in chemistry to help in the organization of a gas-detection service, which will be part of the local authorities' air raids precautions service. Their duties would be to proceed to an area where poison gas was reported, to decide whether gas was present, and, if so, which gas, and to advise on the extent of the danger.

A Forty-Eight Hour Week for Nurses

The nursing profession is the latest to be affected by the general tendency to reduce hours of work. Sir Kingsley Wood, minister of health, visited the Victoria Memorial Jewish Hospital, Manchester, to lay the foundation stone of a new nurses' home, which enables the present staff of fifty-one nurses to be increased by fifteen or twenty, and thus to be inaugurated, for the first time in Great Britain, a forty-eight hour week for nurses. The minister commended the hospital for the steps it had taken in the interest of nurses. Hours of work were a

difficult matter because the interests of the patient did not always permit of rigid adherence to a limit. On the other hand, exhausted nurses could not carry out their arduous duties. Exhausting hours were particularly deplorable for probationers, because they interfered with study and training. In hospitals which he had recently visited there was a decrease in the recruitment of nurses, and the conditions he had mentioned were calculated to have a deterrent effect. He therefore greatly valued the example set by the management of the Victoria Memorial Jewish Hospital in instituting a forty-eight hour week for nurses. He was glad to think that it had been largely inspired by a race whom Britons greatly valued in this country and whom we always desired to have with us. The hospital had never discriminated between suffering people on the basis of either creed or race.

PARIS

(From Our Regular Correspondent)

March 19, 1937.

Social Insurance and the Mortality Rate

In a recent letter (*THE JOURNAL* February 13, p. 568) an article by Dr. Phillip Dally on sickness insurance and mortality, which appeared in the Dec. 2, 1936, issue of the *Presse médicale*, was cited. The author stated that the mortality rate was lower in countries in which no social insurance laws were in effect. A criticism by Dr. Alexandre Roubakaine of this article and a reply by Dr. Dally appeared in the February 13 issue of the same journal. Dr. Roubakaine stated that sickness insurance applies only to treatment of those who are ill and that only minimal efforts had been made in any country in which such insurance exists, in the direction of prophylaxis; hence sickness insurance can have no influence on the mortality rate. The statistics quoted by Dr. Dally with regard to the mortality rate from diphtheria being less in non-socially insured countries had been correct but erroneously interpreted, because immunization against diphtheria had not been carried out in such countries; therefore one must bear this in mind when a failure to decrease the mortality in socially insured countries is quoted. For example, in non-socially insured countries, such as the United States and Canada, millions of children had been immunized since 1926. Roubakaine also disagrees with Dr. Dally on the statistics of mortality in general being lower in non-socially insured countries, citing first the latter group as follows: In the Union of South Africa and Canada the mortality has remained unchanged from 1921 to 1933. In Argentina there has been a drop of 21 per cent from 1921 to 1933. In the United States, Netherlands and New Zealand the drop in the mortality rate from 1905 to 1933 has been respectively 33, 30 and 22 per cent. In countries in which social insurance exists, in Germany the mortality between 1905 and 1933 has decreased 33 per cent, in England during the same interval 18 per cent, and in Chile 17 per cent. Thus one must conclude that the drop in mortality rate has taken place in the same rhythm or perhaps at a slightly accelerated rhythm in socially insured as compared to non-socially insured countries. Certain of the latter group (Canada, the United States, New Zealand) had a much lower mortality twenty-five years ago than England and Germany. Even the mortality rates from tuberculosis and children's diseases which were quoted by Dr. Dally as being lower in non-socially insured countries at the present time are wrong according to Roubakaine, because they were lower twenty-five years ago in these than in socially insured countries. On the contrary, the lowering of the mortality rate in Germany and England (where social insurance exists) has been more rapid than in non-socially insured countries such as the United States, Canada and Australia. In closing his criticism of Dr. Dally's statistics, Roubakaine again reminds one of his belief that social insurance bears no relation to the problem of mortality, because so little is being done by countries in which it exists, toward prophylaxis

of disease. The object of social insurance, he again repeats, is to care for those already sick and not prevent those in good health from becoming ill.

Dr. Dally's reply was that Dr. Roubakaine maintains that social insurance is "equivalent to a system of treatment at reduced rates." Social insurance places salaried workers in the same category as indigents, for whom a system of relief aid when sick has existed for many years in all civilized countries. In France a third of the population is considered "feeble from an economic point of view," a milder form of expression for indigent. The medical profession does not balk at giving free service of the best kind to a small portion of the population when they are really indigent. But, in a system like that which the present social insurance law has brought about, which affects nearly the entire number of those who are ill, can one hope to give the same medical high grade care at cheap rates? If social insurance cannot modify the mortality rate as Dr. Roubakaine asserts, of what benefit to a country can it be? A better system than social insurance is to place every possible method of diagnosis, no matter how costly, at the disposition of the medical profession, the expenses being borne by the community. Medical men will then render the best services possible to the sick. For political reasons, another course has been taken here toward state medicine, thus depriving medicine of its therapeutic forces, which embrace the independence of the medical profession and a free choice of physician by the sick. "The statistics I have quoted prove that social insurance is a failure. I agree that prevention is the first duty of the state and if the social insurance organizations would do so, they would not exist in vain. A large sum of money, now sequestered, at least in France, ought to be devoted to prevention."

Definition of Proposed Public Health Centers

Since his appointment in June 1936 the present minister of public health, M. Henri Sellier, has proposed to establish "health centers" in every department of France. His object is a laudable one, to enable every citizen, even if unable to pay, to enjoy all the advantages of modern medicine. There has been much discussion as to what these health centers would do that is not being done by existing organizations. It will be recalled that reference has been made in recent letters to the offer of the Federation of Medical Syndicates, representing nearly every physician in France, to take complete charge of the medical aspects of such centers. In order to calm the rising storm of opposition to the establishment of health centers, which are regarded by many as an attempt to make every physician a state official, the assistant minister of public health, Dr. R. H. Hazemann, attempted to allay all fears by giving a definition of the health center at the recent meeting of the Congress on Hygiene held at Paris last October. He stated that there had never existed any plan by which state centers for treating patients would be established. The center was not a hospital in any sense of the word. There would be no wards, physicians or nurses. The department of public health only wishes to coordinate and centralize the present dispensaries and social service work. Although fundamentally a medical organization, the chief objective of the department is preventive and social medicine. There is much avoidable overlapping of the work of different public health agencies, which results in less efficient service than would be possible if better coordination existed. Wherever a given region does not possess dispensary service, one will be established. The functions of a health center will include surveillance of maternity cases and the new-born, school inspection, antituberculosis service, antisyphilitic service, detection of cancer and rheumatism cases and health examinations in addition to those at the school periods, to be made at the ages of 15 to 20 years (especially for early signs of tuberculosis) and between 45 and 50 years (for cardiorenal disease and cancer). The examinations are to be made by local practitioners, selected

by the departmental (medical) syndicate. The services are to be remunerated on the basis of a collective contract between the syndicate and the public health authorities. These preventive centers are to be aided by a well trained staff of visiting nurses. The health center, so far as its medical services are concerned, will be under the supervision of a full time physician. In each of the eighty-six departments a coordination committee is to be appointed, made up of delegates of existing public medical administrative organizations, delegates of existing endowed institutions and delegates from the medical syndicates, social insurance bureaus and labor unions.

Exteriorization of an Infected Uterus in Cesarean Section

At the January 20 meeting of the Académie de chirurgie, a paper was read by Louis Portes, associate professor of obstetrics at the Paris Faculté de médecine, on the end results of his method of exteriorization of the uterus in certain cases of cesarean section. He stated that the greatest obstacle encountered in obstetric surgery by the abdominal route was that associated with possible infection of the uterine cavity. When a cesarean section is deemed unavoidable at a late stage of labor, in the presence of an open amniotic sac and the likelihood that vaginal infection has extended to the uterine cavity, conservative cesarean operations, which have only a minimal mortality rate under normal conditions, become procedures accompanied by grave risks. Death of the mother can result from inoculation of the peritoneum with the septic intra-uterine contents, either immediately at the time of operation despite every possible precaution or after eight or ten days as the result of the breaking down of the infected wound in the uterine wall.

Portes has employed, since 1923, a technic (which is well illustrated in the Académie de chirurgie bulletin of January 20) in which the uterus, tubes and ovaries are well isolated by gauze packs from the other abdominal viscera. The uterus is then opened in the usual manner and, following delivery of its contents, the uterine incision is closed; but instead of the uterus, tubes and ovaries being replaced they are exteriorized by closure of the abdominal (parietal) incision tightly around the uterus at as low a level as possible. About three weeks later, the uterine incision can be made more resistant by secondary suture. The uterus, tubes and ovaries can then be replaced into the abdominal cavity about the thirty-fourth day.

Portes communicated the end result of the first case in which this technic was employed, in 1923. The patient, 21 years of age, had a normal delivery in 1922. Dr. Portes was called during the second pregnancy in 1923, when the bag of waters had been ruptured for 130 hours, the temperature being 100 F. and the pulse 160. The amniotic fluid had a fetid odor; hence the necessity of immediate evacuation of the uterus was indicated. Portes had at first contemplated performing a cesarean operation followed by hysterectomy, but he feared to replace the infected uterine stump in the abdominal cavity and decided to exteriorize following delivery of the fetus. His fear of a breaking down of the uterine scar was justified by the fact that this took place a few days after exteriorization of the uterus. The patient left the hospital fifty-one days after the operation.

Professor Portes was able to follow this first case during three subsequent pregnancies. In 1930 a second cesarean section was necessary on account of a contracted pelvis. Microscopic study of the scar of the first incision revealed that a normal reparative process had taken place. In 1934 a fourth pregnancy necessitated version and forceps delivery. In 1935 a fifth pregnancy ended in abortion.

Since this first exteriorization operation, Professor Portes has employed the same technic in a number of other cases with satisfactory results.

BERLIN

(From Our Regular Correspondent)

March 15, 1937.

New Aspects of Some Medical Questions and Nature Medicine

According to an announcement by the medical führer, Dr. Wagner, every new doctor is expected to engage in general practice for one year before entering a special field.

With the new year a "physicians' Sunday rest period" was inaugurated for the insurance physicians of Bavaria. It will apply to all Sundays and holidays. The rest period begins at 7 p. m. on the previous day and lasts till 7 a. m. on the next week day. In order to guarantee medical attention in emergencies a Sunday medical service has been set up based on mutual agreement among the insurance physicians as to which of them will serve on a given day.

The question of whether or not the sale of a medical practice in case of death, for example, or change of location, is compatible with professional ethics has been much controverted. It has been the general opinion of the more ethical members of the profession that a medical practice is far too personal and too much based on the confidence of the individual patient to be made the object of a commercial transaction. The highest Prussian tribunal, the Kammergericht of Berlin, has likewise recently gone on record against the sale of a medical practice. Conversely, the highest tribunal in Germany, the Reichsgericht, has decided that the compensated transfer of a practice from one physician to another in no way constitutes a breach of professional ethics. This is a juridical decision of the first importance and as such it is most worthy of note. Only under particular circumstances could such a transaction appear to be ethically reprehensible as, for example, if the buyer of the practice was compelled by the conditions of the contract to exploit his profession for pecuniary ends and thus disregard the supreme duty of every doctor; namely, service to the health of the individual patient and of the community.

The consultation of Jewish physicians, even those still permitted to practice medicine in Germany, by holders of public office, that is, officials, employees and others, has been made impossible by a decree of the present national minister of finance. Public servants can thus no longer receive monetary sick benefits and so-called emergency aids to cover indebtedness to any Jewish physician, dentist, pharmacist, lay practitioner, institution for the sick and convalescent, lying-in institution or undertaking establishment. Exception is made only in cases of a life and death emergency. Also in future the testimony of Jewish physicians with regard to the permanent or temporary disability of an insured person will no longer be considered competent. These provisions apply to all public servants and their dependents.

The National Organization for a New German Medicine, founded at Nuremberg in May 1935 (THE JOURNAL, April 11, 1936, p. 1327) has been dissolved. This national organization received a great deal of publicity at the time of its joint convention with the German Society of Internal Medicine (THE JOURNAL, Aug. 15, 1936, p. 514); elsewhere, however, it expended all its energies in the interests of Nature Medicine. The dissolution was made on the basis of the National Statute of Physicians at present in force, since according to this law all scientific organizations are under control of the National Health Bureau. The possibility for the national organization to remain in its old form therewith vanished. The functions and the aims remain, however, as the medical führer, Dr. Wagner, explained and he declares furthermore that already great sections of the German medical profession believe in the fundamentals of a new German medicine. The nature cure methods "so reprehensibly neglected in the past" have come to be included among the graduate studies of physicians. In future

the scientific building up of nature cure methods will be carried on under the president of the National Health Bureau. The ultimate educational objective, penetration of the entire medical profession by the new political ideology, will be carried forward by the National Socialist League of German Physicians under the leadership of Dr. Wagner himself.

As every one knows, persons without regular medical education are permitted to attend the sick in Germany. Such persons are known as *heilpraktiker* (lay practitioners). The Association of German *Heilpraktiker* has recently been recognized by the government and the Nazi party as the sole representative organization of the lay practitioners' group, and only members of this association are authorized to use the term "*heilpraktiker*." A person who does not belong to the association may perhaps call himself "*heilkundiger*" (healer) but never "*heilpraktiker*." A person who, being neither a licensed physician nor a *heilpraktiker*, attempts to treat disease is considered a quack.

In addition there is the National League of Chiropractors, with headquarters in Hamburg. These chiropractors have decided to establish a standard three year period of training. The chiropractors number among their activities the removal of corns and ingrowing toenails, and similar procedures, the manufacture of "foot appliances," the correction of plantar defects and the prescription of so-called hygienic footwear.

The question When should a healer refer his patient to a regular physician? is quite timely and important in view of the present state of toleration and recognition in Germany of uneducated healing practitioners, who in any other country would generally be regarded as charlatans. In this connection a recent opinion of the Supreme Court of Germany is significant. According to this opinion it is the duty of the untrained healer to refer the patient to a physician whenever the healer comes to realize after careful and conscientious attention and observation that more than his limited knowledge and skill is necessary for the treatment of the disease. The healer's responsibility is materially increased if the illness is serious and his own procedures have failed to produce a favorable response. If a healer has been asked by the patient or patient's relatives whether a physician should be called in to verify his capabilities and knowledge, the duty of referring the case to a physician becomes doubly incumbent on the healer.

In closing it might be mentioned that the Mazdaznan movement in all its ramifications has been dissolved and suppressed throughout Germany and its properties confiscated.

The Quality of the Mucosa

The investigations of the types of human physique carried on by the Tübingen school are a matter of common knowledge. A recent addition to these studies was a paper on the interrelation of physique and mucous membrane submitted by Dr. Schwarz in the Tübingen Medical Society.

In chronic catarrhal conditions of the nose, pharynx, larynx and middle ear, one finds during the interval between attacks that the mucosa is either thicker or thinner than the normal. Although paratypical influences are of course present, clinical observation has shown that individual variations in the quality of the mucous membrane existed prior to the onset of the disturbance. As the character of the mucosa is largely determined by that of the matrix (*tunica propria*) of the connective tissue, comparative examinations of the connective tissue of the embryonal mucosa of the middle ear were undertaken. It was observed that the cellular structure of the connective tissue possesses a developmental ability that differs with the individual person. It was further determined that the tendency to form fibrils within the connective tissue also presents individual variations. Since the matrix of the connective tissue is derived from the mesenchyma, that is, from the same germinal layer as the supporting and connective substances, an interrelation comes

to exist between the mucous membrane and the bodily physique. It was possible to demonstrate that the mucosa of asthenic persons is delicate, thin and little perfused with blood, whereas that of sthenic persons is thick, juicy and well perfused with blood. It was further ascertained that among persons whose mucosa is manifestly hyperplastic, as among patients who suffer from nasal polyposis, the sthenic (that is, muscular, pyknic) type predominates. On the other hand, if manifest atrophy of the mucous membrane is present, as in *ozena*, a great majority of the patients are of asthenic physique. A connection between the physical type and the quality of the mucosa may be safely assumed on the basis of these observations. Till now, however, this interrelation had not been recognized.

No More Nobel Prizes for Germans

As recently told in the daily press, the German government on January 30 forbade on political grounds the future acceptance of a Nobel prize by a German. As an alternative there has been established a "German National Prize for Art and Science," which will consist of about 100,000 marks, to be distributed annually among three deserving Germans.

It is interesting to note in this connection how many Germans have been awarded the Nobel prize, which has been distributed almost uninterruptedly since 1901. The Nobel prize for medicine and physiology has been awarded to seven Germans: Emil Adolf von Behring, Robert Koch, Paul Ehrlich, Albrecht Kossel, Otto Meyerhof, Otto Warburg and laterly to the zoologist Hans Spemann in 1935. The chemistry prize was received by fifteen Germans, the physics prize by twelve, the prize for literature by five and the peace prize by three.

This proud roster of men whose contributions to knowledge have been deemed worthy of the highest honor has now been brought to an end.

BELGIUM

(From Our Regular Correspondent)

Feb. 28, 1937.

The Twenty-Eighth Congress of Professional Medicine

The twenty-eighth Congress of Professional Medicine brought a large number of physicians from all parts of Belgium to Liège. In the opening address Minister of Health Emile Vandervelde promised that prompt consideration would be given the much debated question of an "*Ordre des médecins*" (council to regulate professional ethics). He himself advocates legislation that would safeguard professional ethics and at the same time in no way impair professional freedom. He also evinced the keenest interest in the dissemination of *cartes sanitaires* (personal health records carried by citizens).

Dr. Féron's report on the more extensive use of the *cartes sanitaires* and the reports on the proposed medical professional legislation by Professors Brèyre and Coppez and Dr. Daubresse-Morelle all gave rise to lively discussions, which occupied the delegates throughout Saturday afternoon and Sunday morning. At the close of these deliberations the following resolutions were unanimously adopted:

1. Preventive medicine. From the standpoint of professional secrecy, the organization of preventive medicine as effected by the *Fédération médicale belge* excludes all possibility of indiscretion and abuse and assures efficient and permanent coordination among the various medical social services for the benefit of the person who holds a *carte sanitaire*. Finally, it vouchsafes to every citizen a handy documentary record or balance sheet of his most precious possession, health. Any physician who wishes to see social medical service pledged to a cooperation with the rest of the medical profession, including the family practitioners, and who believes in the maintenance of an absolute professional secrecy, ought to participate in the campaign begun by the *Fédération médicale belge* within the domain of preventive medicine, on the basis of the program decided on by the Committee on Social Prophylaxis.

2. L'Ordre des médecins. The twenty-eighth Congress of Professional Medicine after having reconsidered and affirmed the urgent need for the creation in Belgium of a council to regulate exclusively the ethics of the medical profession, all financial and syndical considerations aside, demands the immediate creation and maintenance in activity by the executive council of the *Fédération médicale belge* of a permanent commission representative of the diverse opinions with regard to this question.

It will be the duty of this commission to attempt to formulate with the minimum of delay the first draft of a bill to regulate professional ethics, together with a summary of critical opinion. This bill in its final redaction will be introduced into parliament, and the commission will undertake in the course of the discussion incident to its eventual enactment to explain the objectives of the measure to both parliament and the general public. The commission will continue in existence until the legislation has been enacted.

THE CHEMOTHERAPY OF MALIGNANT TUMORS

Hans Auler of Berlin discussed the physicochemical bases of malignant tumors. After outlining various concepts that have enjoyed currency since the beginnings of the chemotherapeutic approach to cancer he discussed the fundamentals of this type of treatment and its prospects of development. The older concept is that therapeutic success depends not alone on the method of application but also on the affinity which a chemical substance may have for the cancerous cell, assuming that this substance is stored within the cancer cell and becomes active by accumulation. Direct action is, moreover, dependent on the vascularization of the tumor, a prime factor, since it is the circulatory system which must maintain the element hostile to the tumor within the diseased tissue. Auler makes macroscopic and microscopic demonstrations of the vascularization in malignant tumors and then studies the various ways in which substances employed in the chemotherapy of cancer may act. He described his personal experimentation with the effects of sodium desoxycholate and kindred substances derived from *Buforana* and *Digitalis purpurea*. He also discussed the interrelation of carbohydrate and cholesterol metabolism within the cancer patient.

Maisin and Pourbaix of Louvain discussed the organoprophylaxis of tar and benzopyrine cancers. They attempted chiefly an outline of the results of their own investigations carried on over the last three years. The principal fact elicited from these investigations was that the organs involved have at their disposal whole complexes of inhibitory and activating substances, the equilibrium of which influences the karyokinetic processes within the organs with particular reference to the differentiation of the latter. The proportions of activating and inhibitory substances is not the same in all organs: certain organs in a fresh condition contain an excess of activating substances over inhibitory substances and vice versa. The liver, when fresh, is an example of an organ in which activating substances predominate, and the brain is an example of the opposite sort for, if in a fresh state, it presents a preponderance of inhibitory substances. Nevertheless, from both the liver and the brain effective substances having the recessive property may be obtained; thus, an organ containing principally activating substances contains at the same time quite effective inhibitory substances. Activating substances may be extracted into distilled neutral or alkaline water, but similar substances will still remain within the pulp of the organ in question. The inhibitory substances are much more difficult to extract and above all to preserve than the activating substances. The authors outlined two methods of extraction, with ether or with heated alcohol. Once extracted, the activating substances as well as the inhibitory substances resist boiling. Exceptions are the inhibitory substances from the stomach. After the extraction by ether of the inhibitory substances, the dry pulp

of the organ is an activating mixture for tar cancer and benzopyrine cancer. Studies made of the desiccated stomach and of the same organ when boiled seem to indicate that the inhibitory substance can be a product of normal digestion. The authors asked whether the inhibitory substances are lysins or substances of differentiation. They believe that the production of activating substances and inhibitory substances forms part of a great process of oxidation-reduction which regulates fundamentally all tumoral metabolism and which lies at the base of antineoplastic immunity. It may be that the catalyzers of oxidation such as the peroxides play an important part in the production of these substances. The authors base this hypothesis on recent investigations of various syntheses of organic peroxides.

Care of the Maimed and Crippled

An interesting comparative study by Dr. Charles Dam, published in the July issue of the *Revue du travail*, concerns legislation aimed to protect the crippled. The following is a summary of Dr. Dam's conclusions:

1. Since the problem of aid for crippled persons is essentially the problem of aid for crippled children, it is necessary that the legal and administrative set up be such that: (a) the census and the follow up of crippled children will be assured; (b) these children will receive the most complete and skilful attention possible; (c) the organic laws of elementary education will permit all crippled children to receive proper instruction, it being understood that a child may continue his school work while he is undergoing medical treatment; (d) special classes may be organized in the public schools and indispensable special schools may be created by public authorities and private foundations; these schools will contain (1) complete clinical and consulting services, (2) kindergarten classes and classes in elementary instruction through all the grades and (3) vocational schools to which adults capable of receiving instruction will also be admitted.

2. It should be provided by law that a certain proportion of crippled persons be employed by various benevolent organizations at various mechanical tasks, as is customary in many other countries.

3. Workshops for the crippled should be established by means of special subsidies.

4. Local regulations should favor the more seriously afflicted cripples by reserving for them so far as it is practicable the care of newspaper stands and jobs in the minor trades.

5. There exists a most urgent need for social insurance legislation.

6. There should be more exact correlation of the various laws which regulate aid for the crippled, the blind, and the deaf-mutes. The problem of psychic abnormalities also requires more adequate legal regulation.

7. It would be desirable to enact special legislation for the deaf-mutes and the blind, since pedotechnical conditions among these groups will differ greatly from those of maimed and crippled persons.

It would be highly gratifying to see the Rotary Club's Association for the protection of crippled children expand its present activities (promotion of the education and treatment of crippled children) to include the sponsorship of trained crippled persons; that is, to continue to supervise and aid such persons in adulthood. By rendering this additional service the association would be performing one of the most necessary duties in the sphere of protection for the crippled. Nothing short of a comprehensive approach to the problem by a private agency will produce the optimal results.

Postvaccinal Encephalitis

Drs. Van den Branden and Nélis have published a study of postvaccinal encephalitis in the *Bruxelles médical*. They point out its rarity in Belgium as compared with other countries. The manifestations are apparently uninfluenced by the seasons.

The virus is unknown. The authors describe the lesions in the brain and spinal cord. The best prophylaxis is vaccination in early life. The treatment indicated is intravenous administration of serum either from persons who have recently undergone successful antivariolic vaccination or from an immunized horse.

Prize for Cancer Research Activities

The Belgian Mining Association of Upper Katanga (Belgian Kongo) has awarded a prize to Prof. E. L. Kennaway, one of its scientific staff, and to Prof. J. W. Cook of the Royal Cancer Hospital, London, for their work in cancer research.

The award was made at the second Cancer Congress, held at Brussels late in September. The prize consisted of 50,000 Belgian francs and 50 mg. of radium.

AUSTRALIA

(From Our Regular Correspondent)

Feb. 24, 1937.

Chronic Nephritis and Lead Poisoning in Queensland

A study of mortality causes in Queensland shows that a large number of people die at an early age from kidney disease. Sometimes several members of one family are affected. The incidence of lead poisoning among children in Queensland is high. It must be understood that in Queensland, owing to the tropical sun, the paint on exposed surfaces powders readily, so that there is an abundance of lead carbonate available to be picked up by youthful fingers.

Medical practitioners in Brisbane and other parts of Queensland have long held that chronic nephritis, terminating fatally in uremia, is more prevalent in that part of Australia than it is in other parts of the world. In 1929 D. G. Croll put this impression on a sound statistical basis by showing from the death returns of the ten year period 1917-1926 that 1,309 persons in 800,000 of the population died of chronic nephritis in Queensland before the age of 40, whereas in the other three states of the commonwealth the number was 436, 421 and 418. A graph of the deaths in the various age groups indicates clearly that a cause nonexistent or nonoperative in the other states was responsible for this strangely high mortality in Queensland, with its peak in the 20 to 29 age group. It fell to L. J. J. Nye of Brisbane to relate this mortality to chronic plumbism in "Chronic Nephritis and Lead Poisoning," a work that may be regarded as the most important contribution of Queensland to medical knowledge since T. L. Bancroft discovered the adult filarial worm there fifty-eight years ago.

Cases of wrist-drop and foot-drop were first described in Queensland children in 1892. In 1897 J. L. Gibson began to encounter weakness of the external recti combined with papilledema, which he regarded as an early and therefore important sign of lead poisoning; in fifteen years he saw fifty-four cases. In seeking a cause for the plumbism, Nye was led to examine closely the habits of children. In Queensland the verandas of houses are commonly built with railings of wood, which, especially in the neighborhood of towns, are usually painted with white lead paint. In that semitropical climate the sun soon converts this paint into a powdery substance which rubs off easily on the hands, and this has been found to be a soluble carbonate of lead. In the summer young children spend a large part of their time on the verandas, and the younger members of the families affected are generally in the habit of biting their nails or sucking their fingers. Among children a local pastime was discovered which consisted in licking the rain drops from the veranda railings. More recently S. F. McDonald, going over the same ground, accepted the "paint-fingers-mouth" theory of causation as the best working hypothesis. As a rule the patient first comes under medical observation early in adolescence, the history being that for years

the child has not been as well as other children. In later stages this lassitude increases, and anemia, vomiting, failing vision and often epistaxis occur. Elevation of blood pressure is invariably present and is accompanied by hypertrophy of the heart. Occasionally cerebral hemorrhage resulting in hemiplegia has been observed. Retinal vascular changes, with engorgement of veins, hemorrhages, exudate and choked disks, are commonly seen. Edema is inconspicuous, and renal failure ending in uremia is the usual conclusion.

A federal investigation published in 1932 upheld the contention that kidney disease in young persons in Queensland is extraordinarily prevalent. It reached the tentative conclusion that the chronic nephritis common in Queensland arises, as elsewhere, as a result of many factors productive of kidney damage, including principally familial weakness of the kidney fabric, damage produced by congenital syphilis, and conditions set up as the result of the acute or prolonged action of toxins derived from pathogenic organisms. In Brisbane, in cases in which such predispositions exist, the concurrent ingestion of infinitesimal doses of lead from an undetermined source appears in a proportion of cases to precipitate a fatal issue many years earlier than would otherwise be the case, weeding out the great mass of patients with chronic nephritis before they attain the age of 40. Since whatever factor is operating in Brisbane appears to be operative also in several other cities of the Brisbane type, the possibility of lead poisoning being a factor in these areas, though it does not figure in hospital records, cannot be entirely discounted but must be investigated before conclusions can be accepted as final. The work on which these tentative conclusions are based is included in the full report submitted to the director general of health in Canberra. Nye replied to the conclusions of the official inquiry by showing that after a careful review of the statistical, clinical, environmental and experimental evidence that has been collected in the federal report and in his work it must be admitted that lead poisoning in childhood is at least one factor which is responsible for the high rate of mortality from chronic nephritis in Queensland—a rate, however, which happily now shows some signs of abating. The amount of positive evidence incriminating lead paint is indeed so overwhelming that it seems almost perverse to insist on a further search for other causes before taking preventive measures against poisoning. Nye's work emphatically teaches the lesson of the damaging effects of lead on young tissue and strengthens the demand that lead should be forbidden in paint, especially on surfaces such as veranda railings and gates to which children have ready access.

Marriages

JEROME ENGEL, Ravena, N. Y., to Miss Pauline Barthman Feder of East Orange, N. J., in Albany, N. Y., March 17.

NEWSOM P. BATTLE to DR. MARGARET ELIZABETH WHITE, both of Rocky Mount, N. C., in Detroit, January 2.

IRWIN W. BARRETT, Clarksdale, Miss., to DR. ALLIE M. ARRINGTON of Richton, February 28.

MAXCY WILBUR HOOK to Miss Mary Wilson Meiklejohn, both of Cheraw, S. C., March 18.

JOSEPH G. GUSTAFSON, Moline, Ill., to Miss Hilda Kosman of Wausau, Wis., Sept. 21, 1936.

FRANCIS RAMON BURKE to Miss Mary Stuart Merritt, both of Quincy, Mass., January 23.

FREDERIC L. BAER to Miss Jeanne Lois Traugott, both of Indianapolis, Dec. 24, 1936.

CLARENCE S. COSTIGAN, Moline, Ill., to Miss Frances Ostewig of Chicago, Nov. 26, 1936.

JUDD R. BREAKSTONE to Miss Gertrude Stern, both of Chicago, January 29.

GUY E. DORE to Miss Doris Elizabeth Ladd, both of Guilford, Maine, April 3.

Deaths

Theobald Mathew Marie Flynn, Eric, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; fellow of the American College of Surgeons; consulting obstetrician, gynecologist and staff surgeon to St. Vincent's Hospital; member, associate staff, Hamot Hospital; consulting gynecologist to St. Joseph's Orphan Asylum; assistant surgeon, Pennsylvania Railroad; aged 61; died, February 6, of carcinoma of the prostate.

Forrest Kendall Anderson, Sonyea, N. Y.; Baylor University College of Medicine, Dallas, Texas, 1929; member of the Medical Society of the State of New York; member of the consulting staff, Craig Colony, Sonyea, and member of the junior dermatologic staff of the Rochester General Hospital, outpatient department; formerly member of the staff of the state department of health; aged 31; died, February 13, of teratoma with pulmonary metastases.

Cornelius Doremus Van Wagenen * New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; member of the city health department in 1897; assistant otologic surgeon to the Manhattan Eye, Ear and Throat Hospital; attending otolaryngologist to the Seton Hospital, 1904-1914; aged 71, died, March 5, in the Harbor Hospital, of arteriosclerosis and hypertension.

George Mossman, Gardner, Mass.; University of Vermont College of Medicine, Burlington, 1914; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; served during the World War; on the staffs of the Henry Heywood Memorial Hospital and the Gardner State Hospital; school physician of Westminster; aged 47; died, February 7, of influenza.

Simon Tannenbaum * New York; Bellevue Hospital Medical College, New York, 1896; medical director of the Sydenham Hospital; formerly superintendent of the Beth David Hospital; at one time served as the director of the medical activities in Palestine of Hadassah, and was director of the Hadassah Hospital; aged 64; died, March 1, of arteriosclerosis.

Charles Beaver Mack, Boston; Jefferson Medical College of Philadelphia, 1910; district health officer in the Boston metropolitan area; medical director of the Episcopal Eye, Ear and Throat Hospital, Washington, D. C., 1922-1927; served during the World War; aged 50; died suddenly, January 23, of coronary thrombosis and hypertension.

Harris Fenton Brownlee, Danbury, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; member of the Connecticut State Medical Society; fellow of the American College of Surgeons; on the staff of the Danbury Hospital; aged 70; died, February 24, of cerebral arteriosclerosis.

William C. Dixon, Greenville, Ill.; Beaumont Hospital Medical College, St. Louis, 1895; member of the Illinois State Medical Society; president of the Bond County Medical Society; and past president of the Vermilion County Medical Society; formerly health officer of Danville; aged 67; died, February 12, in the Barnes Hospital, St. Louis.

Thomas J. McArthur, Cordele, Ga.; Southern Medical College, Atlanta, 1894; member of the Medical Association of Georgia; past president of the state board of medical examiners and member of the state board of health; on the staff of the Cordele Sanatorium; aged 68; died suddenly, February 15, of heart disease.

Thomas Owen Maxwell, Austin, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1878; member of the State Medical Association of Texas; formerly superintendent of the Texas Training School for Defectives and Sanitarium for Mental and Nervous Diseases; aged 83; died, February 18.

Joel Isham Denman, Kansas City, Mo.; Beaumont Hospital Medical College, St. Louis, 1900; member of the Missouri State Medical Association; served during the World War; aged 59; on the staffs of the Providence Hospital and St. Mary's Hospital, where he died, February 2, of a skull fracture received in a fall.

James David Lowry, Fort Dodge, Iowa; State University of Iowa College of Medicine, Iowa City, 1901; member of the Iowa State Medical Society; past president of the state board of health; formerly county coroner and city health officer; aged 60; died, February 10, in the Mercy Hospital.

David Garrison Ghrist * Los Angeles; Harvard University Medical School, Boston, 1925; fellow of the American College of Physicians; on the staffs of the Los Angeles County Hospital, Hospital of the Good Samaritan and St. Vincent's Hospital; aged 38; died, February 3, of pneumonia.

Delmar Ivan Martin, Springfield, Ill.; Northwestern University Medical School, Chicago, 1929; member of the Illinois State Medical Society; president of the county tuberculosis board; served during the World War; aged 35; died, February 21, in St. John's Hospital, of pneumonia.

Carl Alfred Feige * Canova, S. D.; Hahnenmann Medical College and Hospital, Chicago, 1906; member and past president of the state board of health; served during the World War; on the staff of the Canova Hospital; aged 58; died, January 26, of carcinoma of the intestine.

Samuel Beaver Geise * Sunbury, Pa.; Medico-Chirurgical College of Philadelphia, 1903; served during the World War; on the staffs of the Evangelical Hospital, Lewistown, and the Mary M. Packer Hospital; aged 59; died, February 2, in Alcolu, S. C., of coronary occlusion.

Cecil Corwin Johnson * Le Claire, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; formerly member of the city council of Le Claire; aged 59; died, February 18, in St. Luke's Hospital, Davenport.

Elbert Horton Downs, Montgomery, Ala.; Chattanooga (Tenn.) Medical College, 1900; member of the Medical Association of the State of Alabama; aged 66; died, February 13, in a local infirmary, of nephritis, cerebral hemorrhage and hypertension.

Fredrick R. Bueche * Steubenville, Ohio; Georgetown University School of Medicine, Washington, D. C., 1920; aged 41; on the staff of the Ohio Valley Hospital, where he died, February 6, of a skull fracture received in an automobile accident.

Henry M. Boies, Albany, Ill.; Jenner Medical College, Chicago, 1910; member of the Illinois State Medical Society; served during the World War; aged 57; died, February 24, in the Veterans Administration Facility, Hines, of pneumonia.

Joseph Cohen * Berwick, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; past president of the Columbia County Medical Society; on the staff of the Berwick Hospital; aged 54; died, February 10, of pneumonia.

Fred Louis Holcomb * Coldwater, Kan.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; president of the Comanche County Medical Society; aged 59; died, January 31, following an automobile accident.

Luther Marshall Jayne * Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1906; on the staffs of Mount St. Mary's Hospital and the Niagara Falls Memorial Hospital; aged 54; died, February 3, of coronary thrombosis.

Mary Agnes Laughlin, Hagerstown, Md.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; member of the Medical and Chirurgical Faculty of Maryland; aged 68; died, February 2, of carcinoma of the breast.

Carl Henry Cunningham, Indianapolis; Indiana University School of Medicine, Indianapolis, 1928; member of the Indiana State Medical Association; aged 41; died, February 10, in St. Vincent's Hospital, of ulcerative colitis.

Ernest Watson Kelsey, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the Medical Society of the State of Pennsylvania; aged 65; died, February 8, of cirrhosis of the liver.

Sarah Marcy Crawford, Newton, Mass.; Woman's Medical College of the New York Infirmary for Women and Children, 1877; member of the Massachusetts Medical Society; aged 92; died, February 15, of bronchopneumonia.

Benjamin Geret Gossow, St. Charles, Mo.; St. Louis University School of Medicine, 1922; member of the Missouri State Medical Association; on the staff of St. Joseph's Hospital; aged 40; died, February 8, of pneumonia.

Nathaniel Niles Morse, Goffstown, N. H.; Harvard University Medical School, Boston, 1904; member of the Associated Anesthetists of the United States and Canada; aged 60; died, February 24, of emphysema.

Leslie Frank Mulford, Philadelphia; Jefferson Medical College of Philadelphia, 1911; instructor in surgery at his alma mater; served during the World War; aged 53; died, March 6, in Miami, Fla., of heart disease.

Joseph Cooperstein, Flint, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University

of Illinois, 1909; aged 54; died, February 14, in the Hurley Hospital, of coronary thrombosis.

Charles J. Mooney, Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1904; aged 62; died, February 3, in the Gallinger Municipal Hospital, of hypertensive heart disease and cirrhosis of the liver.

Joseph Franklin Moell, Lincoln, Neb.; Northwestern University Medical School, Chicago, 1907; member of the Nebraska State Medical Association; aged 58; died, January 21, of pneumonia complicated by meningitis.

Clarence Leslie Stammers, Los Angeles; California Eclectic Medical College, Los Angeles, 1914; aged 49; died, January 21, in the National Military Home, of bronchopneumonia and coronary thrombosis.

Willis Edwards Lowry Jr. Ⓢ Laredo, Texas; University of Texas School of Medicine, Galveston, 1924; served during the World War; on the staff of the Mercy Hospital; aged 40; died, February 6, of influenza.

John Ignatius McGuigan, Philadelphia; Jefferson Medical College of Philadelphia, 1887; on the staff of the Chestnut Hill Hospital; aged 70; died, February 19, in Bangor, Maine, of arteriosclerosis.

Harrell Myers Graham, Scranton, S. C.; Medical College of the State of South Carolina, Charleston, 1909; member of the South Carolina Medical Association; aged 51; was found dead, February 1.

William Margulies Ⓢ Brooklyn; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; on the staff of the Beth Moses Hospital; aged 68; died, February 8.

Arthur Edgar Kennedy, Washington, D. C.; University of West Tennessee College of Medicine and Surgery, Memphis, 1917; aged 42; died, February 6, in Lorton, Va., of influenza and pneumonia.

John William Boyd, Sarcoux, Mo.; Barnes Medical College, St. Louis, 1896; served during the World War; aged 65; died, February 3, in St. John's Hospital, Joplin, of septicemia and pneumonia.

Arthur T. Gregory, Mauston, Wis.; College of Physicians and Surgeons of Chicago, 1894; formerly secretary of the Juneau County Medical Society; aged 81; died, February 6, of pneumonia.

James David Howard Ⓢ Mount Lebanon, Pa.; Jefferson Medical College of Philadelphia, 1920; on the staff of St. Joseph's Hospital and Dispensary, Pittsburgh; aged 41; died, February 2.

Albert Columbus Lofton, Lucien, Miss.; Memphis (Tenn.) Hospital Medical College, 1906; served during the World War; aged 61; died, February 22, in a hospital at Brookhaven, of pneumonia.

Charles Franklin Doran Ⓢ Phoenixville, Pa.; Jefferson Medical College of Philadelphia, 1896; aged 67; on the staff of the Phoenixville Hospital, where he died, February 24, of pneumonia.

William Huey McCombs Ⓢ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1895; on the staff of the South Side Hospital; aged 69; died, February 22, of coronary occlusion.

William Edward Gholson, La Center, Ky.; University of Louisville Medical Department, 1894; member of the Kentucky State Medical Association; aged 65; died, February 4, of pneumonia.

Thomas Linville Ⓢ Washington, D. C.; George Washington University School of Medicine, Washington, 1904; aged 62; died, February 1, of coronary occlusion and hypertension.

Edward Webster Bookhart, Wall Lake, Iowa; Lincoln (Neb.) Medical College of Cotner University, 1906; served during the World War; aged 56; died, February 9, of pyelitis.

Walter Asbury Newman, Manassas, Va.; Medical College of Virginia, Richmond, 1876; University of the City of New York Medical Department, 1878; aged 83; died, January 26.

Arthur Gilbert Bentley, Tipton, Tenn.; Memphis Hospital Medical College, 1910; aged 51; died, February 19, in the Baptist Memorial Hospital, Memphis, of pneumonia.

George Austin Carter, Hardwick, Vt.; Dartmouth Medical School, Hanover, N. H., 1890; on the staff of the Hardwick Hospital; aged 72; died, February 5, of influenza.

Wilhelmus Bogart Robinson, Ionia Island, N. Y.; New York Homeopathic Medical College and Hospital, 1888; aged 77; died, January 31, of carcinoma of the prostate.

Claiborne W. Evans, Modesto, Calif.; University of California Medical Department, San Francisco, 1881; aged 77; died, February 7, in San Francisco, of pneumonia.

Frank Borland Dake, State Sanatorium, Ark.; University of Tennessee Medical Department, Nashville, 1887; aged 72; died, February 15, of pulmonary tuberculosis.

Helen Robertson Howe-Gage, Suffield, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 69; died, January 6, of carcinoma of the sigmoid.

James Ambrose Malone Ⓢ Athens, Ohio; University of Cincinnati College of Medicine, 1924; aged 49; died, February 6, in the Mount Carmel Hospital, Columbus.

Elmer Ellsworth Cary, Ithaca, N. Y.; Bellevue Hospital Medical College, New York, 1887; aged 75; died, February 11, of chronic myocarditis and left hemiplegia.

William Carlile Caldwell, Wentzville, Mo. (licensed in Missouri in 1901); member of the Missouri State Medical Association; aged 65; died, February 15.

Charles William O'Donnell, Andover, N. Y.; University of the City of New York Medical Department, 1884; aged 76; died, January 28, of arteriosclerosis.

Charles B. Mulvey, Montpelier, Ind.; Medical College of Indiana, Indianapolis, 1894; formerly county health officer; aged 68; died, February 24, of influenza.

Patrick Henry Glancy, Parkersburg, W. Va.; Hospital College of Medicine, Louisville, Ky., 1892; aged 70; died, February 15, of cerebral hemorrhage.

Lazarus Sylvester Sobel, New York; University of Vermont College of Medicine, Burlington, 1894; aged 67; died, January 29, of coronary sclerosis.

Daniel Morris Harvey, Oakland, Calif.; Cooper Medical College, San Francisco, 1889; aged 81; died, January 31, of acute dilatation of the heart.

Edward S. Coats, Plains, Mont.; Kansas City (Mo.) Hahnemann Medical College, 1909; aged 66; died, January 15, of carcinoma of the bladder.

Arthur Eisbein, Buffalo; University of Buffalo School of Medicine, 1901; aged 62; died, February 13, of coronary occlusion and arteriosclerosis.

Mary Electa Clark, Chatham, N. Y.; New York Medical College and Hospital for Women, 1897; aged 91; died, January 8, of chronic nephritis.

George Wesley Beatty, Brooklyn; Long Island College Hospital, Brooklyn, 1898; served during the World War; aged 65; died, February 8.

Norman Buell Marshall, Chicago; Jefferson Medical College of Philadelphia, 1883; aged 76; died, February 26, of carcinoma of the ear.

Wadie Fadoul Courie, Detroit; Medical College of Virginia, Richmond, 1912; aged 51; died, February 14, in Kinston, N. C., of carcinoma.

Andrew Grassau, Caledonia, Ill.; Rush Medical College, Chicago, 1896; aged 68; died, February 10, in a hospital at Fort Myers, Fla.

De Witte Stone, Sayre, Okla.; Tulane University of Louisiana Medical Department, New Orleans, 1897; aged 63; died in January.

Monta B. Carr, Tazewell, Tenn.; Tennessee Medical College, Knoxville, 1902; county health officer; aged 66; died, February 10.

James T. Dicks, Nashville, Tenn.; Chicago Homeopathic Medical College, 1880; aged 84; died, February 8, of cerebral hemorrhage.

Hiram Davis Lofin, Henderson, Ala.; Medical College of Alabama, Mobile, 1904; aged 55; died, February 14, of coronary thrombosis.

William Fountain, New York; University College of Medicine, Richmond, 1898; aged 66; died, February 22, of coronary sclerosis.

Joseph Lynn Carnahan, Kansas City, Mo.; Kansas City Medical College, 1892; Civil War veteran; aged 92; died, February 6.

William Henry Woods, Mount Brydges, Ont., Canada; Trinity Medical College, Toronto, 1898; aged 65; died, January 27.

Merida F. Brown, West Hamlin, W. Va.; Kentucky School of Medicine, Louisville, 1905; aged 59; died in February.

James Lewis Pennington, Thedford, Neb.; Barnes Medical College, St. Louis, 1893; aged 68; died, January 27.

Bureau of Investigation

BENJAMIN GAYELORD HAUSER

Fruits, Vegetables—and Nuts

"Dr." Benjamin Gayelord Hauser, widely promoted for a while in various newspapers, is now billed in commercial food pamphlets of the Modern Health Products, Inc., of Milwaukee as a "World Famous Authority on Dietetics . . ." and "the famous Viennese scientist." He is not a doctor of medicine, not a Viennese and certainly not a scientist. Hauser endorses the concoctions of the Modern Health Products, and the Modern Health Products, of which Carl S. Hauser is vice president and treasurer, endorses Benjamin Gayelord Hauser.

In common with others of the mysterious men and women who appear out of the nowhere as "international scientists," "leading authorities on diet" and "world-famous lecturers on health," Hauser offers a series of free lectures on diet and health as a "come-on" for a special lecture course to be given at the conclusion of the free lectures. In addition, books, pamphlets and preparations of Modern Health Products, Inc., are recommended.

Unfortunately, the whys and wherefores of physiology, chemistry, anatomy and hygiene do not descend upon one as did the revelations of the prophets. Yet in some such supernatural manner must the "advertising scientists" have received their academic knowledge. For if these gentlemen and ladies of the lecture platform have left any record of their undergraduate training in accredited universities or colleges, it must have been as delicate as gossamer, and as intangible.

Hauser first came to the attention of the Bureau of Investigation in 1926, when a St. Louis newspaper announced that "Dr." B. Gayelord Hauser, "head of a New School of Health in Chicago," would give a series of free lectures in St. Louis. A Hauser class announcement of about the same period carried a quotation from George Starr White, M.D. "George Starr White—Quack" was the title of an article in THE JOURNAL for April 13, 1929, page 1292. In summary, the article stated: ". . . George Starr White is a quack who has commercialized the practice of medicine, who has no scientific standing, and whose opinions on matters dealing with modern medicine are wholly without value."

In 1926 the stationery used by a Helen Linch in writing for "Dr." Hauser to a Grand Rapids, Mich., inquirer, carried the heading "Bengaman Gaylord Hauser, M.D." A thorough search of the biographic files of the American Medical Association failed to reveal any one by the name of Bengaman Gayelord Hauser as a graduate of any medical college or licensed to practice medicine in any state in the Union. If Hauser was not trying to pass himself off as a Doctor of Medicine, the stationery used for him certainly left no doubt that Hauser was an M.D. It seems incredible that Hauser could have been represented as an M.D. without his knowledge, as Helen Linch was supplying "Special Information" on Hauser to all comers from the Morton Hotel at Grand Rapids in April 1926.

Hauser no longer uses the prefix "Dr." or the suffix "M.D."; he is content to be modestly known to his classes as "a nutritionist, a food scientist, a doctor of chemistry . . ." and admits: "I don't know beans about medicine. . . ."

If Hauser is a "doctor of chemistry" other than by self appointment, he failed in his class "announcements," distributed during his appearance at the Sherman Hotel, Chicago, in April 1936, to state from what academic institutions he acquired his knowledge of chemistry. Unless one is willing to accept the Hauser pronouncement that "Hauser's tremendous store-house of fundamental knowledge, coupled with the latest scientific facts he gathers each year in the great health centers of Europe . . ." is sufficient to confer on him the title "doctor of chemistry."

In his "lecture" at the Sherman Hotel on April 28, 1936, Hauser claimed to have attended the Chicago College of Naprapathy; his name did appear in the Chicago telephone book some years ago as a naprapath, although the records of the Department of Registration and Education of the State of

Illinois do not show that Benjamin G. Hauser was ever licensed under the Illinois medical practice act for treatment of human ailments by any system.

Hauser is a personable-looking, youngish man with a leading-man stage presence and a flair for the Jack Pearl-Baron Munchausen type of dialect ("smashed potatoes" for "mashed potatoes").

Benjamin Gayelord Hauser first entered the United States, according to a reliable authority, in 1911, from Tübingen, Germany, as Helmuth Hauser at the age of 16, and joined his brother, Otto Robert Hauser, then pastor of a church in Milwaukee. Thereafter little is known of Hauser's activities except what he tells from the lecture platform. Hauser states that he was dying of tuberculosis of the hip at the age of 16, which we have learned was his age when he entered the United States. He claims to have been given up by several famous Chicago physicians and returned abroad for treatment. In Switzerland, by accident, he claims to have met an old physician who prescribed lemon juice. Voila! Hauser was cured after one or two weeks of lemon juice. However, recovery from tuberculosis or some other serious illness by means of a special diet



Photograph of Benjamin Gayelord Hauser from one of his announcements, 1936.

is a claim made by practically all health faddists. In regard to his lemon juice treatment, Hauser warns his audience not to take thirty-six lemons a day, as he did!

Eugene Helmuth Hauser, now Benjamin Gayelord Hauser by court order, states that 50 per cent of the world's pains and aches could be cleared up by sodium, potassium and calcium. Hauser is extremely careful in his announcements to call attention to the fact that "personal consultations or interviews cannot be arranged, and it is clearly understood that his work in no way enters that field which pertains to the diagnosis and treatment of individual conditions." Nevertheless, chemist Hauser has no hesitancy in prescribing from the rostrum for various ailments submitted to him by card.

Hauser has a diet for practically every ailment to which mortal flesh is heir. There is the "Mending Diet" (with menus), the "Vitality Diet" (with menus), the "Transition Diet" (with menus), and the "Zigzag Diet." It is recommended that the "Zigzag Diet," together with "Syn," a preparation of the Modern Health Products, be taken by the overweight.

The three trump cards in Hauser's healing deck are sodium, potassium and calcium. One trained in the orderly method of the presentation of the sciences will suffer a series of academic shocks in attempting to follow Hauser in the ways of calcium, potassium and sodium. As a lecturer Hauser is as elusive as a rabbit; when you are prepared for a pronouncement of scientific fact the thought suddenly evaporates and Hauser is gracefully tacking his healing ship into a new angle.

As the Hauser meeting warms up, it takes on that electrifying something found only in religious revivals. Various members of the audience get up and testify to strange and unusual occurrences. An elderly woman testifies that her hair has turned from gray to brown as a result of the Hauser diet. Hundreds of hands were raised when Hauser asked how many had been free from colds since his last visit.

Hauser has ready answers for every question submitted to him by card, such as that every ear noise is due to a lack of red blood. To the question "How can I gain 25 pounds and spread it evenly over my body, not putting it on in spots?" Hauser answered, "When you balance your meals correctly, you don't put on weight in spots."

In reply to the question "What is good for pyorrhea?" Hauser stated: "Pyorrhea means anemic gums. Take lemon and hot water half and half."

To the question "What can I do to improve my hearing?" Hauser replies: "Hard of hearing people have mucus in the ear. Dissolve the mucus, flush, cleanse. If the ear drum is alive, you can improve your hearing."

Hauser also advised his audience: "Never take a trip across the ocean without 'Swiss-Kriss.'" Swiss-Kriss also is a concoction of the Modern Health Products, Inc., and was the subject of a Federal Trade Commission stipulation released on June 25, 1936. A few of the statements which the Modern Health Products, Inc., agreed to discontinue in their advertising were "that the product is a 'modern laxative' or a 'secret' of the Swiss people or that the formula was brought from Switzerland by health 'authorities'; that it will 'up-build' the system or that the product is a tonic or that it possesses tonic properties."

In September 1934 the Food and Drug Administration prosecuted the Modern Health Products, Inc., for selling two other products—"Santay-Swiss Anti-Diabetic Tea" and "Nutro-Links"—under fraudulent therapeutic claims. According to the government chemists, the first-named product consisted of plant drugs including peppermint leaves and stems, malva flowers, senna pods and dog grass, and Nutro-Links was composed of powdered plant material, common salt and Glauber's salt.

Another question asked at the Hauser lecture was: "What is vitality and why do so many people lack vitality?" Hauser answered: "If you are fat and eat a lot of fat, then your gallbladder is overworked and your gallbladder takes up a lot of energy."

Many more examples of the Hauser vagaries could be mentioned, but those cited should give sufficient information as to the type of advice Hauser dispenses.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SYPHILITIC AORTITIS

To the Editor:—I am treating a patient for a syphilitic aortitis and have been treating him in about the same manner in which one would any chronic syphilis. This treatment has been over a period of a year and has consisted of alternating courses of bismuth and mercury compounds and neoarsphenamine, without intermissions. Does syphilitic aortitis call for special or different treatment? Please give me an early reply and omit name.

M.D., Texas.

ANSWER.—Cardiovascular syphilis requires specialization in its treatment. The two points to be emphasized in the treatment of cardiovascular syphilis are the effort to preserve the heart muscle and prevention of the progress of the syphilitic involvement. The Cooperative Clinic Group has shown that in patients with uncomplicated syphilitic aortitis the results of treatment are superior to those obtained in individuals with complicated syphilitic aortitis in that in the former group the life expectancy can be increased by treatment from thirty-four to eighty-five months after detection while in the complicated type the increase in life expectancy is from forty to fifty-five months after detection. The special treatment for syphilitic

aortitis includes first such measures as are indicated by the status of the heart. If signs of decompensation are present, rest in bed and the use of cardiac stimulants or sedatives is warranted. The antisyphilitic remedies in such patients should be limited to either mercury or bismuth compounds by intramuscular injection. These should be continued until compensation is reestablished, when small doses of arsphenamine may be given, preferably by the intramuscular route. Bismuth arsphenamine sulfonate or sulfarsphenamine is well suited for such cases. If neoarsphenamine is used intravenously, it is well to start with a dose of 0.05 Gm. and increase the dosage slowly. In the type of case mentioned in the inquiry, cardiac decompensation has apparently not been present, so that ambulatory treatment has been satisfactory thus far. As a general rule, however, it is recommended to start the treatment of all patients with cardiovascular syphilis with a bismuth or mercury preparation for at least a month before inaugurating one of the arsphenamines. Likewise, the physical activities of these patients should be restricted.

It is necessary to continue the treatment of patients with cardiovascular syphilis for a long time, and it is impossible to specify the number of injections of an arsphenamine or heavy metal preparation that should be administered in a given case because of the numerous factors that may influence such a decision. Chief among these, of course, is the progress, favorable or otherwise, which the cardiac lesion may show. In the case that responds favorably, small doses of arsphenamine in conjunction with either bismuth or mercury compounds should be given in courses twice a year for at least three years, following which courses of bismuth or mercury compounds alone should be given for three more years. Semiannual reexaminations are then warranted, as these patients are prone to have subsequent cardiac breakdowns. For the patients who progress unfavorably, the use of the antisyphilitic remedies is of secondary importance and when used should be given in small doses.

The ideal method of preventing cardiovascular syphilis is by the adequate and intensive treatment of early syphilis.

EXCESSIVE SWEATING AT NIGHT

To the Editor:—A man, aged 28, complains of severe night sweats and states that the odor of the perspiration is foul and rancid. He does not sweat during the day, although he does manual labor in an automobile plant. He is well developed and well nourished, is 68 inches (173 cm.) in height, and weighs 165 pounds (75 Kg.). Physical examination reveals no pathologic condition. His blood pressure is 118 systolic, 76 diastolic and the pulse rate is 72 beats per minute. His temperature is 98.6 F., without rise in the afternoon. There is no cough or expectoration. The Kline test is negative. Basal metabolism tests were made and the result was minus 4. Roentgenograms of the chest show the heart slightly enlarged and some evidence of an old healed pleurisy and slight chronic bronchitis. There is no evidence of tuberculosis. He has been given belladonna and potassium iodide solutions without any benefit. I would appreciate if you would aid me in the diagnosis and offer some advice as to further treatment.

M.D., Ohio.

ANSWER.—It seems that, of the ordinary causes of generalized hyperhidrosis, tuberculosis, rheumatism and hyperthyroidism have been ruled out. Anemia sometimes causes excessive sweating. A series of blood counts should be made with a differential count of the white cells and a sedimentation test. If anemia is present it should be treated with iron, arsenic or liver extract, as the type of anemia indicates. A rapid sedimentation test may point to some focal infection, which may be indicated also in the differential count.

In spite of a nonfebrile course and lack of an enlarged spleen, malaria may be suspected. The presence of secondary anemia with leukopenia may point to it, and a therapeutic test with quinine may be indicated, though of course not all that yields to quinine is malaria.

The negative Kline test and failure of improvement from potassium iodide do not rule out syphilis. Repeated Wassermann and precipitin tests should be made and the spinal fluid thoroughly examined.

The urine should be examined repeatedly, particularly for sugar, and the blood sugar should be estimated. Glycosuria is sometimes associated with hyperhidrosis. A thorough examination of the eyegrounds with a careful survey of the nervous system may reveal signs of dementia paralytica, myelitis, brain tumor or functional disorder as a cause of the excessive sweating. Finally the mental state of the patient must be studied. Neuroses due to fear may be responsible for hyperhidrosis.

A number of cases of self-limited generalized hyperhidrosis have been reported in which no etiologic factor could be found. The theory offered is that they were due to a temporary vasomotor disturbance in the corpus stratum or the hypothalamus consequent on some infection.

A study in the hospital is recommended. The amount of sweating and the odor can be noted. Neurotic patients often exaggerate body odors. The habits of the patient should be studied. Excessive drinking in the evening should be avoided. If no etiology can be discovered, symptomatic treatment must be used. Atropine and belladonna are seldom helpful because of the disagreeable by-effects. Stimulating baths, cold needle baths, alum, salt baths or alcohol baths are often helpful. Strychnine in stimulating dosage may be helpful.

DERMATITIS IN LEATHER WORKERS

To the Editor:—A man, about 23 years of age, single, complains of severe nervousness and a certain type of dermatitis, especially on the feet and hands, and the exposed part of the neck. The dermatitis of the hands and feet is similar to an eczema. He has had it for from six to nine months. He seems to be of a very neurotic type. He works in a glove factory and is working with leather ten hours a day. The question I wish to ask is: Is dermatitis caused by the handling of leather over a great period of time?

ROBERT WENDELL SHAW, M.D., Marinette, Wis.

ANSWER.—Yes, dermatitis is caused by the handling of leather. It is characteristic of sensitization that it may take place after long contact with the sensitizing material. However, manufacturing processes and materials are constantly being changed.

Dermatitis due to leather is not uncommon. In the preparation of leather, sumac, formaldehyde, chromic acid and tannin from myrobalan or quebracho are used in tanning, and ammonia or oxalic acid is used in finishing and polishing. Bismarck brown, chrysoidine and aurantia (emperor's yellow) are the dyes that give most trouble. Titanium chloride used as a mordant is very irritating.

Leather dressings may contain formaldehyde, mirbane oil, resins, white arsenic, asphalt, pearl ash, aniline, bismarck brown, oil of turpentine and possibly pine oils.

If it were not for the fact that most of these irritants are fixed, covered or removed in the process of manufacture, leather dermatitis would be much commoner than it is. The British Leather Manufacturers Research Association reported in 1932 that dermatitis due to leather was due probably to the presence of free chromic acid or to excessive amounts of water soluble dyes. This applies to shoes (London letter, *THE JOURNAL*, April 2, 1932, p. 1197). Glove leather is often tanned with formaldehyde. This may be the source of irritation in the case under discussion. Patch tests of the various substances that the patient handles should be made on healthy parts of the skin.

TACHYCARDIA WITH SYPHILIS

To the Editor:—In a man, aged 23, who was complaining of frequent headache, ostealgia, easy tiredness and tachycardia (with normal rhythm), it was discovered that the Kahn reaction was 4 plus. Physical and radiologic examinations were negative. An electrocardiogram revealed a hyperexcited myocardium without organic lesion. The basal metabolism and the blood cholesterol were within normal limits. He was then (June 17, 1936) given the following treatment: weekly injections for a period of nine weeks of 0.45 Gm. of nearsphenamine and of 0.1 Gm. of a bismuth compound (Iodobisman). From Aug. 1, 1936, to Sept. 25, 1936, I gave him 1 Gm. of Iodobisman. September 28 the Kahn reaction was negative. At present he is very much better except for the tachycardia, which disturbs him very much. Now and then he has attacks of paroxysmal tachycardia. What do you think of these attacks and their treatment? Are they related to smoking? I should like to know what your opinion is regarding the kind of syphilis of this patient. He never developed a sore on the penis or elsewhere. I am most interested in knowing whether it is possible to get syphilis without catching an initial sore (chancre). I. e., d'emblée. Will you please outline the treatment of this patient. If it is congenital syphilis is the treatment the same as for the acquired form? What is the treatment for paroxysmal tachycardia in this case? Please omit name and address. •

M.D., Brazil.

ANSWER.—Tachycardia due to syphilis is usually found in one of two situations. It may be present in the secondary stage when this stage is rather violent and associated with fever or it may be encountered in cardiovascular syphilis with mild or severe cardiac insufficiency. Neither of these conditions is present in this case, so it seems reasonable to doubt that the tachycardia and the syphilis are closely associated. This doubt is strengthened by the fact that the tachycardia was unimproved by the treatment, while most of the other complaints cleared up.

The causes of sinus tachycardia, and to a lesser extent of paroxysmal tachycardia, are multitudinous. Hyperthyroidism, the effort syndrome, and pathologic changes in the chest or abdomen include only a few of these causes. Both types of tachycardia are merely symptoms and it is unwise to treat any symptom if it is possible to ascertain the underlying cause. If the etiologic factor in the case of the paroxysmal tachycardia cannot be discovered or if it cannot be eradicated, the salts of quinine and quinidine have been found of value in preventing

the paroxysms. It is most difficult to slow a sinus tachycardia by means of medication. Recently derivatives of acetylcholine have been used in both types of tachycardia; but the use of these drugs is not without danger and should not be lightly undertaken. Tobacco may produce tachycardia in sensitive persons but certainly is not a common cause of this phenomenon.

It seems likely that the patient has an acquired syphilis. Congenital syphilis usually makes itself known before the age of 23 years and the absence of a known initial lesion does not carry much weight with syphilologists of large experience. It is assumed that in most of these cases the initial lesion has been extragenital and has gone unrecognized. Intra-urethral chancre is another source of confusion.

The use of the term "infection d'emblée" is ordinarily confined to those cases acquired by contamination with a syphilitic blood. This occasionally happens in blood transfusion, at the operating room table or at the necropsy table.

Whatever the source of the infection, there can be no criticism of the treatment carried out here. It should of course be followed up at suitable intervals and an examination of the spinal fluid should be considered before a complete arrest is assumed.

TOXICITY OF METHYL CELLOSOLVE

To the Editor:—Will you please state whether the fumes produced by mixture of methyl cellosolve with 80 per cent grain alcohol will produce any deleterious effects on the lungs of working people.

MURRAY BERGER, M.D., New York.

ANSWER.—Monomethyl ether of ethylene glycol is readily prepared by treating ethylene oxide with methyl alcohol in the presence of a suitable catalyst. The cellosolves, of which there are several, are useful solvents, as they at the same time partake of the properties of alcohols and of ethers. For this reason they readily dissolve a variety of organic substances. Because methyl cellosolve is derived from methyl alcohol and retains some alcoholic properties, it might be assumed that this substance is physiologically akin to its progenitor, methyl alcohol. Such is not the case and such alcoholic properties as are displayed by methyl cellosolve more closely resemble ethyl alcohol than the methyl variety. Reference may be found to the toxic properties of cellosolves in the *American Journal of Public Health* (19:525 [May] 1929). A more extensive discussion appears in *Public Health Reports* (45:1459 [June 27] 1930). However, this material is more closely related to ethyl cellosolve than to the methyl. This report is based on an experimental study from which it was determined that cellosolve vapors to the point of air saturation produce only a disagreeable odor, together with moderate eye and mucous membrane irritation. The statement is made that no indications were observed suggesting the possibility of chronic poisoning from ethyl cellosolve. While no large amount of data are in hand specifically referable to methyl cellosolve, there is no reason to believe that, in a mixture with 80 per cent ethyl alcohol, any marked deleterious effects on the lungs of workers are to be expected. Ethyl alcohol itself is not an entirely innocuous substance. As used in industry it is comparatively innocuous. It is believed that the presence of methyl cellosolve along with 80 per cent ethyl alcohol will give rise to no additional manifestations other than a moderate degree of local irritation.

NODOZ ANTISLEEP REMEDY

To the Editor:—Air line pilots have had recommended to their use a product known as "NoDoz" as a means of combating a tendency toward sleep. Will you please advise me of the formula of this product. Also, is any medicinal agent, other than citrated caffeine, recommended as a means of staying awake?

M.D., Florida.

ANSWER.—Some tests of a specimen of NoDoz made in 1934 indicated the presence of caffeine and an organic acid, probably citric. No other alkaloids were found. It was concluded that the tablets contained essentially caffeine citrate.

Misrepresentation of the therapeutic value of NoDoz Awakeners was charged by the Federal Trade Commission at Washington in a complaint issued against the NoDoz Laboratories, Inc., of Sacramento, Calif., on June 18, 1936. Among the representations cited by the commission were the respondent's alleged claims that NoDoz Awakeners are a pure vegetable concentrate and are used by more than a million automobile drivers, which claims, the complaint charged, were false or exaggerated.

Ephedrine, benzedrine and cocaine are other alkaloids that have a tendency to produce wakefulness; and their use, by reason of this tendency, should generally be avoided at bedtime.

POSSIBLE CANCER OF STOMACH

To the Editor:—A white woman, aged 49, housewife, nulliparous, seems to have a malignant growth of the stomach. On examination, the only positive pathologic conditions were a uterine mass the size of a grapefruit palpable superficially, with subserous fibroids vaginally and tenderness in the epigastrium. A hysterectomy was performed, and exploration of the abdomen revealed pathologic changes on the posterior wall near the cardia that appeared to be a malignant growth with possible glandular involvement; but the surgeon was unable to remove any tissue for biopsy because of the incision being too low down. Three weeks later the patient still complained of symptoms referable to the epigastrium, although occasionally to a lesser degree as compared to those before the operation. The surgeon wants to do a gastrectomy or whatever is feasible when the abdomen is exposed again. However, I fear a fatal outcome sooner than if a "hands off" policy is followed (perhaps with irradiation). The physical condition of the patient in general is good with exception of the blood pressure, 160 systolic, 100 diastolic. What is the wisest policy to follow, surgery or not? What treatment should be given then and what is the prognosis in either case? Kindly omit name if published.

M.D., New York.

ANSWER.—If examination by a competent roentgenologist confirms the diagnosis of malignancy to the exclusion of gastric syphilis, benign tumor and diaphragmatic hernia, one can hope to accomplish little by further surgical intervention. Inaccessibility of the lesion, and the prohibitive surgical mortality following subtotal or total gastrectomy, argue strongly against further operation. The prognosis under any circumstance is unfavorable, granted that the lesion is a malignant one. The treatment is largely symptomatic and palliative, although high voltage roentgen therapy might be carried out.

EPINEPHRINE IN PROGRESSIVE MYOPIA

To the Editor:—I wish to inquire into the use of epinephrine in the treatment of progressive myopia. I would be pleased to receive information on the length of treatment and on the dangers and contraindications of such treatment and finally on its apparent value. Please omit name.

M.D., Minnesota.

ANSWER.—The use of 1:1,000 epinephrine in the treatment of progressive myopia was introduced by Dr. Meyer Wiener of St. Louis and has been discussed in subsequent communications by various authors. In such cases epinephrine is used as drops into the conjunctival sac three times daily for long periods, at least three years or more, depending on the age of the patients. There appear to be no dangers or contraindications. The only untoward result appears when the solution becomes too old or becomes contaminated, especially by air fungi. The treatment appears to be of greatest value in young patients from between 8 and 12 years of age to early adolescence.

It is impossible to state absolutely whether or not the use of epinephrine arrests the progress of so-called progressive myopia, just as it is equally impossible to determine a priori whether any one case will progress or not. But in various series of patients of similar age and with like amounts of myopia there was definitely less progress in the myopia when epinephrine was used faithfully.

ENDOCRINE PRODUCTS FOR TESTICULAR DEVELOPMENT

To the Editor:—What is the status of endocrine products to develop small genitalia in a 9 year old boy? Both testes have descended. Please omit name.

M.D., California.

ANSWER.—There may be a question whether or to what extent artificial means should be directed toward enlarging the genitalia in a 9 year old boy whose testicles have descended. Aside from this question the general problem is still in the experimental stage, particularly as concerns the human being. The two means available for hormone stimulation of the accessory reproductive organs in experimental animals are (1) the injection of pure chemical extracts such as androsterone or testosterone (now prepared by synthetic means) and (2) the injection of gonadotropic agents to stimulate increased male hormone secretion by the intact testicle. Substances having these properties and prepared from human pregnancy urine or pituitary tissue are available for therapeutic use. It has been shown on experimental mammals that injections of androgen into the normal young growing animal has a decidedly retarding and injurious effect on the intact testicle. Continued injections of gonadotropic substances have been shown conclusively to stimulate testis hormone secretion in the experimental mammal and the reports of results from clinical applications, especially in cases of testicular undescended, have been favorable in some cases. Such treatments are yet too few, and the results

reported too uncritically weighed, to offer convincing indications of the efficacy of the measures adopted. A definitive answer to the question cannot be given at present.

NEEDLING OPERATION FOR CONGENITAL CATARACT

To the Editor:—I have two patients, aged 6 and 10 months, with congenital cataract. I would like your opinion as to the best time to do a needling operation. Since I have never operated on any patients this young I would like some one else's opinion as to the advisability of operating right away. Please omit name.

M.D., Virginia.

ANSWER.—The age at which congenital cataracts should be needed depends to a great extent on the character of the condition. If the lens opacities are accompanied by congenital miosis, it is not wise to attempt any operative procedure before the age of 6 years. But if the iris is normal and the pupil can be dilated widely, needling may be performed any time from the age of 18 months upward. There need be no fear that there will be failure of retinal development from lack of use by postponing the operation; on the contrary, there is no need of operating until the child is old enough to wear correcting glasses.

PERSISTENT PAIN AND EDEMA IN WRIST AFTER TRAUMA

To the Editor:—A woman, aged 25, injured her right wrist in the subway rush hour about two years ago by having it pinioned against a door post. Persistent pain followed this, accompanied by slight swelling of the fingers. The pain extends from the wrist to the fingers and is increased with edema when the fingers are used for such work as typing. For the past six months the patient had been symptom free until two days ago, when in getting off a chair she leaned heavily on her right hand and symptoms are again returning. The past history is negative; x-ray examinations on two occasions have been negative for fracture. What do you think is the diagnosis and treatment? Please omit name.

M.D., New York.

ANSWER.—Repeated x-ray examinations that are negative for fracture are not sufficient and the data are inadequate to make a diagnosis or advise treatment.

What about the calcium content of the bones? Is there demineralization or osteoporosis? This case may be in the classification of osteo-articular-vascular-neurogenic lesions. The present attack may be a mild recurrence. There may be a malacia of the carpal bones. Foci of infection should be investigated. Some of these patients do well on occupational therapy and some require sympathetic denervation. Excellent literature on this subject will be found in articles by Clarence H. Heyman of Cleveland, Gurd of Montreal, Leriche and Fontaine of France and R. Watson Jones of Liverpool.

PEPSIN SECRETION OF LOWER ANIMALS

To the Editor:—I should be greatly obliged if you could inform me whether the stomachs of the calf and cow are known to secrete any pepsin. If they do contain pepsin, could you let me know whether any of the larger animals (domestic) secrete a pepsin-free gastric juice? I should also be grateful for any references on the gastric physiology of these animals. Please omit name.

M.D., Canada.

ANSWER.—Pepsin seems to be normally present in the stomach secretion of all species of vertebrates, certainly from the amphibians up. There appears to be some uncertainty as to the character of the gastric enzyme in fishes. In the ruminating mammals, pepsin is secreted in the last division or true stomach. Of course not all vertebrate species have as yet been examined for gastric pepsin. As to gastric pepsin in calves, the pepsin and the hydrochloric acid of the gastric juice appear at or shortly before birth, in those species so far studied.

HYPERPYREXIA FOR TREATMENT OF GONORRHEA

To the Editor:—We note in Queries and Minor Notes of March 27, 1937, the report of a case of chronic periurethral abscess with persistent presence of gonococci. In the reply to the query concerning treatment, it is stated that artificial fever therapy is rather heroic treatment for this condition, and further local treatment is recommended. A persistent gonococcal infection of fifteen months' duration is by no means a trifling affair, especially as far as the patient and his possible contacts are concerned. This patient has been offered rational local treatment, but the infection still persists. Hyperpyrexia in experienced hands conducted under control of a physician doing fever therapy has proved its merits in eradication of gonococcal infections. It is now time to correct the general impression that hyperpyrexia is heroic treatment. As this form of therapy is today conducted, it is neither dangerous nor debilitating. Since all workers in artificial fever therapy report from 88 to 92 per cent cures in all types of gonorrheal infection, this therapeutic measure should be definitely encouraged in persistent gonorrheal infections.

J. M. BERRIS, M.D.
M. K. NEWMAN, M.D.
Detroit

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Third Annual Meeting, held in Chicago,
Feb. 15 and 16, 1937

(Continued from page 1291)

DR. JAMES N. BAKER, Montgomery, Ala., in the Chair
JOINT SESSION OF THE COUNCIL ON MEDICAL
EDUCATION AND HOSPITALS AND THE
FEDERATION OF STATE MEDICAL
BOARDS

FEBRUARY 16—MORNING

SYMPOSIUM ON THE SELECTION OF STUDENTS

Primary Mental Abilities

L. L. THURSTONE, PH.D., Chicago: While the complex known as intelligence is very useful in differentiating those who are generally bright and those who are less endowed, it is of great importance to isolate those elements of intelligence which are in some fundamental sense primary. Common experience supports the view that such differentiable types exist and that mental endowment cannot be adequately described in terms of a single index. This problem has been the subject of speculation for centuries, and every writer has been at liberty to set up his own classification and to argue for its acceptance. A scientific treatment, on the other hand, demands that the elements of intelligence be demonstrated by objective experimental methods.

Scientific work that has been in progress for the past four years has revealed seven primary mental abilities. While future investigation will refine our present ideas about each of the primary abilities, it is possible already to describe the general characteristics of seven of them. The present list of seven primary factors was isolated by the application of factor analysis to the records of 240 college students who volunteered fifteen hours of work in taking fifty-six psychological tests. One of the most conspicuous primary abilities that appeared in these experiments was number facility. This primary factor is entirely restricted to numerical thinking and it is present in the highest amount in simple numerical speed tests. It is less conspicuous in those numerical tests which involve reasoning or formulation of a problem in quantitative terms. Another primary ability conspicuous in these experiments is word fluency. A test of anagrams has a large component of this ability. In one of the best tests for this factor the student is asked to identify words that are presented with their letters in disarranged order. Another similar task is to write as many words as possible that have the same general meaning as some given word. The visual material in these experiments was adequate for the isolation of a primary ability of visualizing. As far as can be determined at present, this factor includes the visualizing of solid objects as well as flat space. Again there seems to be experimental justification for describing some persons as visually minded. A distinct memory factor was revealed in the analysis. The memory tests were varied in content so as to involve memory for names, words and numbers, and tests were included in order to ascertain whether recognition memory among distractors would reveal several memory factors. The conclusion seems warranted that a person can be described as having a good memory in general without specification as to what he can remember well. One of the seven primary abilities has been called perceptual speed. It is prominent in those tests in which the subject is asked to identify something quickly when it is mixed with other perceptual material. In one of these tests the subject is shown a figure with some detail of design. He is also shown five others that differ but slightly and he is asked to pick out the design that is an exact duplicate of the given design. This is the ability that enables some people to scan a page of names

or numbers to find a particular item quickly while others must examine each item separately. A most interesting primary ability that has appeared in these experiments is one that has been named induction. It is involved in several tasks which have in common the characteristic that the subject must discover some principle or rule that governs the material. Another primary ability has been named verbal reasoning. It is exemplified by tests of verbal analogies and tests in which the subject is asked to match proverbs which have the same moral or quotations which have the same meaning, and to make numerical estimates which require deductive reasoning.

The practical result of these tests is that individuals can be appraised as regards each of the primary mental abilities. Instead of describing a child or an adult by means of a single index of intelligence, the description will be in terms of at least seven indexes which can be graphically represented on a diagram in a sort of profile. The ups and downs on an individual's mental profile show the primary abilities in which he is gifted and the abilities in which he is not gifted. Such a description is in line with common observation about people according to which they differ not only as to a single average mental level but also in the diversity of individual talent.

In vocational and educational guidance, the mental profiles will play an important rôle. Children may be divided into separate groups in the schools in accordance with their mental profiles and taught to read, for example, by methods that are appropriate to their respective imagery types. An engineering student who is relatively deficient in visualizing will be warned beforehand of his difficulty with descriptive geometry. The medical student who is relatively low in memory will know beforehand that he will have to give special effort in learning anatomy. Unsuspected talent might be discovered by rating people on each primary element of intelligence.

One of the most fundamental educational problems is to determine to what extent these primary abilities are native and to what extent they can be trained. If it should be found that some abilities can be trained, school curriculums might be fundamentally altered. It will be of great social interest to ascertain which abilities are determined by inheritance. Since the primary mental abilities have so recently been isolated, there must be several years of intensive research before the appropriate tests can be made generally available for all ages. Further experimental studies must also be made in refining our conception of the primary abilities.

Measurement of Personality

EDWARD K. STRONG JR., PH.D., Stanford University, Calif.: There are two major problems in the selection of students for a medical school. First there is the problem of selecting applicants who will do satisfactory scholastic work in school. Second there is the problem of selecting applicants who after graduation will be successful practitioners, enjoy their work and be a source of pride to the profession. This paper is primarily concerned with the problem of selecting students who will make good in actual practice after graduation. Here a wide variety of factors needs to be taken into account. Consideration should be given to such characteristics as honesty, willingness to work, faithfulness in performance of duty, lack of tendency to get drunk, and the like. Without such qualities a man cannot be trusted and hence will not be employed even though he did fine scholastic work in medical school. Consideration ought also to be given to those aspects of personality which will win clients and the cooperation of colleagues.

One approach to this problem of selecting men for a profession who will enjoy their work throughout life is through the use of the vocational interest test. This is a test of what one likes and dislikes. It is not a measure of intelligence. Certain general conclusions can be stated following thirteen years of research and the analysis of thousands of records of men in more than forty different occupations. First, adult men engaged in a particular occupation have a characteristic pattern of likes and dislikes which differentiate them from men engaged in other occupations. Second, occupations can be grouped according to the similarity of the interests of the men engaged in those occupations. Third, these occupational interests are not the result of experience from working in the occupation, for college men and high school boys possess such

interests before they have had any actual experience in the occupation or even in many cases before they have studied the subject.

Each of our 285 college seniors has been assigned to the single occupation in which he rates highest. On this basis it is found that 4.6 per cent of these college seniors have more distinctly the interests of physicians and surgeons than any other among twenty-seven occupations. These percentages must be viewed as tentative, but they suggest that there are enough young men definitely possessing the interests of medical men to fill the medical schools.

The interest test purports to differentiate those who have the interests of successfully employed men in a given occupation from those who do not have such interests. And the claim is made that the former are more likely to enter the occupation and continue in it than the latter. If a professional school is desirous of securing students who will continue throughout the entire course, it should see to it that students have the ability to do the work and the interest to continue in such studies. Too many educational institutions are interested primarily in filling their classes with students and are little concerned with whether those students belong there or somewhere else so long as the students obtain sufficiently satisfactory grades and continue on to graduation. Should not every educational institution be primarily concerned in directing students into the pathways which they are best fitted to follow? From the data in my possession it is clear that if this should be done there would be a considerable interchange of students, with the result that many more students would be trained for the occupation they are best fitted to follow and educational institutions would have fewer misfits in their specialized training courses.

We are in no position to carry out such a program in a thoroughgoing, efficient way because we lack the measuring devices which are necessary for determining individual fitness. A beginning can be made, however, employing the devices which we now have at our disposal. The vocational interest test is such a device. If it should be given, for example, to all college students in their sophomore year, some now heading for medicine would be encouraged to try something else and some not now considering medicine would enter the profession. The interest test can possibly be used as a selective device in considering applicants for admission to medical school. It should be tried out in this connection on an experimental basis. The danger to guard against is the fact that students can fudge the results if they wish to do so, unless possibly they are required to take it in a designated minimum time. But the real place to use the interest test is when students are honestly trying to make up their minds what they should do. Under these conditions they give honest responses to the test items.

The Why, What and How of the Medical Scholastic Aptitude Test

DR. TORALD SOLLMANN, Cleveland: The tests devised by Dr. F. A. Moss, which have been given nationally for several years by a committee under the auspices of the Association of American Medical Colleges, aim to test a student's ability to master the study of medicine, to appraise his chances of getting through the medical school, and to forecast whether he is likely to rank as an outstanding, a good, a fair or a poor student in medicine. The test does not pretend more than this. Granting that it is desirable to know the medical scholastic aptitude of the applicants in order to select them, is it necessary to institute a special test for it? The applicant has been studying at a college; could not the college tell us all about his scholastic aptitudes or ineptitudes? Do not his grades tell the story. Sometimes they tell it very well indeed, better than any test; sometimes they tell it not very well and sometimes not at all, or they may even distort it out of all recognition.

It may be just, but it may also be unwise, to close the door automatically on account of college grades which may be the result of faults of judgment of a youth who has not yet found himself; it may be an undeserved calamity to him, and perhaps to humanity, for some good material will certainly be discarded. Linnaeus, I believe, was expelled from secondary school for stupidity, though with the saving grace of a "hope that, like some trees in a nursery, he might thrive better

after transplanting." The scholastic aptitude test gives the student a final chance to show whether his low grades were caused by something else than native ineptitude. At the same time, it helps to nail lame excuses, so often heard and so difficult to answer, that the grades would have been quite different if this, that or the other. If low grades and low aptitude test ranking coincide, there remains no room for alibis. It is in the middle group, however, in which an additional test is especially necessary to separate the collegiate sheep and goats. The case is somewhat parallel to diagnosis in medical practice. The extremes of illness and health can generally be diagnosed satisfactorily by the direct physical signs, but not always, and laboratory tests and x-ray plates will pick up something important here and there that would have been missed without them; and whenever the older methods leave room for doubt, and especially for prognosing and comparing intermediate cases, the physician would use every means available to him and not be content with a method that amounted to a 50 per cent probability, if this could be checked by another method of examination. The best diagnosis is not furnished by any single method but by the checks and counter-checks of several independent methods.

What is the Moss test? How does it manage in two hours to give a generally reliable estimate of a student's ability for the study of medicine, more reliable on the whole than his two, three or four years of college grades? The test approaches its problem from several rather distinctive angles. First it tries to depart from the beaten paths of course examinations, so that it cannot be prepared for, at least directly. It aims to sound what is left of the previous knowledge and experience of the student after most of the forgettable things have been forgotten. Through this it aims to reach the student's real interests and his power of selection for these. Then it aims to test the ability of the student to apply his knowledge remote from its usual context and thus again to distinguish what has become a part of the student from that which became part of an animated phonograph. At the same time, this tests the ability of the student to face new situations on his own. Then again it sets certain rather difficult study tasks, not requiring any previous knowledge of the subject but testing the ability to handle the sort of tasks with which the medical student is faced; and, finally, the whole test is a test of the ability to work under some pressure, which is so necessary in the study of medicine. These are broadly the distinctive aims of the test, and their application is checked every year by Dr. Moss and his staff by comparing the correlation of the several parts of the test with the grades of the students in the medical school, and the different parts of the test are then given more or less weight, or dropped, according to how they pass this test of achievement. New approaches are introduced tentatively and tested, retained or abandoned in the same manner. In this way it is hoped to make the tests ever better and to keep them from becoming stereotyped.

It should not be expected that the testing of men by men will ever be perfect. The genius of men differs in all things, and aptitude tests are no exception. They are meat to some and poison to others. Some men have a special knack for working out puzzles and like them, and others abhor them. The good correlation of the aptitude test with premedical and with medical grades shows that personal reactions are not generally serious; but when they are material in an individual case, this is of course shown by a sharp divergence of college grades and aptitude test, so that the admission officer may look into the matter and make his decision with this in mind. Previous practice in taking the aptitude test generally brings some improvement, but the official rating of the applicant shows whether he has taken the test before, and the grades can then be compared and the "practice improvement" discounted. Efficient proctoring is the only protection. Special training for the aptitude test is nearly akin to cheating, since it aims to secure an unfair advantage over other applicants.

No one, I imagine, has ever seriously proposed to use the aptitude test as the sole criterion for the selection of applicants. It is merely one factor in the diagnosis and prognosis. Even for scholastic aptitude it should be appraised with an eye to the college grades; and, when these together indicate the ability of the applicant to master the study of medicine.

other factors which play an important part in the practice of medicine must be considered, especially character and the features generally grouped as "personality and background." Until a method is devised of expressing the quality of a competent, conscientious practitioner in mathematical terms, conclusions must be based on sense and logical deductions.

DISCUSSION ON THE SELECTION OF STUDENTS

DR. IRVIN D. METZGER, Pittsburgh: We have had this morning a discussion from the point of view of the psychologist and the educator, who start and predict the likely person, the possibilities of the young man. The secondary schools are attempting to do that all over the country at present. It is interesting to those who catch these people after they have been trained, apparently, for the work which they are to do. Somehow, it is felt that many of them have not been touched quite as they should have been to make the best type of practitioners. There has been a misfit somewhere. I suspect it is in the personality rather than in the training. Personality is a very difficult thing to determine. So it is in the matter of education. Certain personal factors that are sure to crop out cannot be evaluated. I think the matter of interest has a great value, however, in any line of study. In the older cultures, as they exist in Europe, the young man or young woman is apt to follow the type of life which the parent has followed. That is not true in America; in fact, it seems in America to be the opposite. The technic of finding out whether a man will make a good physician, even when he comes before the state board, is inadequate.

DR. T. E. BROADIE, St. Paul: Three general characteristics are extremely important: first, intelligence. There are many ways in which one can learn about a student's intelligence. The second is character. Every one knows pretty well what is meant by fine character. The third is personality. This is the most indefinite and difficult characteristic to evaluate. A personal interview with the committee on admissions, preferably at the school, or meetings arranged elsewhere if necessary, is extremely important. If these meetings are informal, it is extraordinary what unusual matters may be found out in the course of half an hour's interview.

DR. FRANK M. FULLER, Keokuk, Iowa: Men and women of the highest grade of intelligence, the greatest aptitude for accomplishment, may go through the medical course, but if those men and women go out into the community without the qualities of honesty, integrity and moral stamina they will never make good physicians. I believe that in all our tests, as has just been said, a personal interview gives a better idea of the quality of the man. The man who will go out into the community and act fairly and act justly and act rightly will be the man who should be selected as the possible student and practitioner of medicine.

DR. TORALD SOLLMANN, Cleveland: The matter of character, of course, is really important. It did not happen to be a part of this morning's program. I am sure that the personal interview is the most efficient method of appraising. I think our experience has been that on the whole we tend to learn more by the appraisals of the man under whom the student has been in college than we can learn from the interview, although it is not, of course, without value.

SYMPOSIUM ON TECHNIC OF EXAMINATIONS

Philosophical Comments on Examinations

DR. HOWARD T. KARSNER, Cleveland: This article was published in full in *THE JOURNAL*, March 27, page 1022.

Fundamental Purposes, Methodology, and Technics of Examining in Relation to Medical Education and Licensure

BEN D. WOOD, PH.D., New York: The fundamental purpose of medical examinations is to secure information about individuals which will enable us to judge their suitability for admission to and promotion in medical schools, and for admission to medical practice. Medical education is a privilege which should be accorded only to those who have the ability

and character to be worthy members of the profession and faithful servants of both the sick and the well. The funds for medical education are so inadequate, and are invested with such a crucial public interest, that any waste of them on incompetent or unsuitable students is a social loss which multiplies itself as time goes on. If such wastes are knowingly allowed for any reason, or even if they result only from negligence, a social crime has been committed which is incompatible not only with the Hippocratic oath but also with the ordinary rules of decent citizenship. If such negligence proceeds to the extent of licensing candidates who are incompetent because of either intellectual or moral deficiencies, a crime is committed which, at least potentially, is nothing short of heinous and revolting. On the other hand, it has been asserted by some authorities that good medical men are so rare that the exclusion of even one good man by unduly severe standards would entail a potentially great loss. But since one incompetent or unfaithful doctor can do more harm than ten can prevent or repair, let us err, if at all, on the side of humanity and the integrity of the profession, rather than endanger both for the sake of a few doubtful candidates.

The devices and methods now commonly used for selection are inadequate, and better ones are available if we would make the adjustments required by them. In common with most other professional colleges and licensing boards, those concerned with medicine have taken the matter of personnel selection rather lightly, not to say nonchalantly. They have more or less passively accepted traditional devices and methods. Technical advances in the construction and interpretation and use of examinations have been largely ignored and in some cases denounced. The obvious inadequacies of traditional devices have led to some discussion but not to any systematic or organized research in the field of medical aptitudes, achievements, interests or personal characteristics and methods of identifying and measuring or describing them. This is surprising, because medical diagnosis and medical case records have for many years served as an inspiration for workers in the field of educational and vocational guidance. We need educational, intelligence and personal and moral diagnosis comparable with modern medical diagnosis if we are to improve the selection of candidates for medical education and practice. This is a high ideal which will not soon be reached, but we can move toward it if we can catch the spirit and adopt the methodology that have led to the remarkable triumphs of modern medical diagnosis. The devices and examinations now used by colleges and boards are not nearly as accurate as the clinical thermometer and stethoscope, and even if they were as accurate they would no more be adequate to meet the admission and licensure problem than the thermometer and stethoscope alone would be adequate to meet the diagnostic problems of the general hospital of a large city.

The examinations now generally used in medical colleges and by licensing boards suffer from several technical imperfections: 1. Subjectivity. The examinations are almost exclusively of the essay-writing type. As usually employed, the written examination is highly subjective, from the selection and wording of the questions through the process of evaluating the answers and interpreting the resulting grades. 2. Inadequate sampling of materials and performances. Since the student must write out his answers in long hand and since only a few pages can be written in examination periods of normal length, the sampling of the materials on which the examination is based is necessarily narrowly limited. Since the number of questions is limited and each represents a large percentage of the total score, chance elements play a large and often decisive part in determining the final score. Since writing is in some degree a special art which involves abilities and habits often irrelevant to the purpose of the examination, and since students, like their examiners, vary from day to day in their effective writing, and since only a few brief samplings of the students' writing are secured, several additional chance and irrelevant elements are often present in vitiating degree. These weaknesses, plus the subjectivity of the rating, are the main sources of the low reliability and low validity of the traditional types of examinations as traditionally administered. 3. Statistical unreliability. Most if not all studies of the essay-type examination agree in indicating a relatively low statistical reliability.

Objective types of examinations which are carefully made usually show much higher reliability, unit for unit of examination time. 4. Low validity. The most serious consequence of all these technical defects is the generally low validity of the essay or written examination as normally used. Essay examinations constructed by the same examiners and designed to measure the same functions in the same pupils do not usually agree more than 50 per cent better than chance, even when allowance is made for their statistical unreliability. Even carefully made college entrance examinations in English, in which the written examination would appear a priori to be at its best, rarely predict a whole year of college grades in English more than 10 or 20 per cent better than chance. 5. Lack of comparability. Another serious defect of the traditional examination, as generally used, is the lack of comparability in the resulting grades or percentage scores. The questions, chosen subjectively, vary enormously in their difficulty, and the standards by which the answers are evaluated vary from reader to reader, and from day to day in the same reader.

I make these strictures on the traditional examination only as it is traditionally and generally used. Most of these defects can be greatly reduced or eliminated by careful procedures such as those used in recent years by the College Entrance Examination Board and by the Board of Examinations of the University of Chicago. Thus what I have chiefly denounced here is not the old-type or essay examination per se but rather the traditional misuse and misapplication of the written examination and the failure to use supplementary types of tests both for their intrinsic advantages and for their value in minimizing the defects of the written type of examination.

As in other educational institutions, the first duty of the medical college is not to teach but to learn students—to learn whether they belong in medical college and, if so, what specialties they might best pursue, if any. That this first duty has not been satisfactorily discharged by higher institutions generally is indicated by the high and increasing academic mortality rates in our colleges of liberal arts, of engineering and of law. The traditional examinations have not merited the confidence which we have reposed in them. The objective forms of tests will by no means furnish panaceas for all the maladjustments in our educational system, but that they are capable of giving us more exact and more meaningful information about our students than the traditional examinations alone has been demonstrated beyond reasonable doubt.

The Essay Examination "On the Spot"

DR. ROBERT P. DOBBIE, Buffalo: A recent survey made by questionnaire, to which seventy out of seventy-five universities responded, indicates that sixty-four of these seventy schools, or 92 per cent, use written final examinations either alone or combined with oral examinations in the senior year of the medical school. It was also learned, from the information furnished by sixty-one of the responding schools, that fifty-eight, or 95 per cent, use examinations made up for the most part of essay or "discuss" type questions. One concludes, therefore, that the usual written final examination given in most medical schools as well as by the national and state boards of examiners, is generally made up of varying numbers of essay or "discuss" type questions. It is my observation that the essay or "discuss" type questions are, as a rule, poorly designed; furthermore, frequently the same questions are repeated with slight, if any modifications, year after year. They are extremely narrow in their scope and many of them are poorly worded, requiring indefinite, lengthy answers which are extremely difficult, if not impossible, to grade or rate. The essay question gives the student the opportunity to write for an indefinite length of time on a subject he may know little or nothing about. Any one who has had the opportunity to examine these examination papers thoroughly appreciates the difficulties encountered in going through page after page of illegible writing, hoping to find, and recognize, points which the question was supposed to bring out. One often finds, if anything at all, a maze of impressions scattered amidst much irrelevant discussion. Some facts, though accurate, are later voided as the student rambles on, trying to get in every possible thought which he considers even remotely connected with the subject.

The experienced examiner has also realized how the severity in grading answers to the essay question varies, not only with different examiners, but with the same examiner, according to circumstances. That these difficulties and many others are actual, not merely hypothetical, has been proved many times in the college of arts and sciences and now for the first time, or again, in a college of medicine.

A study was carried out last year in the Medical School of the University of Buffalo, where, for the past four years, I have been acting as chairman of the examination committee. Sincere efforts to grade reliably 128 essay question manuscripts (submitted by sixty-four students) by eight competent examiners proved futile though a greater than usual attempt at unified estimation was made. The grades assigned by the individual examiners were studied and compared in two departmental groups, each comprising four examiners, as well as in one group of eight examiners.

Grading of the same manuscript by four different examiners resulted in a tremendous variation of grades. The point spread between highest and lowest grade assigned each manuscript was more than ten points in 60 per cent of instances and more than fifteen points in from 35 to 50 per cent of instances, depending on which group of examiners is considered. The grade variation of the two groups of examiners (four each) was manifested in no lesser degree, and correlation between the two groups was conspicuous by its absence. No relationship between the two questions is suggested, though they are both important medical subjects.

Examiners grading the same batch of manuscripts after several months' lapse of time showed tremendous variation in their own grades, which completely changed the status of a sizable proportion of the class.

Reliability in grading was in no way improved by grading in groups instead of by percentage grade.

Forty-four, or 60 per cent, of the class of sixty-four students were questioned or failed by one or more of the eight examiners, but, on analysis, practically all were unjustified if the consensus (of all participating examiners) was used as the determining factor.

In this demonstration, at least, it is shown quite conclusively that the resultant grades on manuscripts written as answers to typical essay or "discuss" type medical questions are thoroughly unreliable and are of little or no use in determining the general ability of a student on either an individual or a competitive basis.

Because of the marked variation in assigned grades shown among the examiners of the same department as well as between the two departmental groups of examiners, it is concluded that the more examiners participating, the greater the confusion and the more impossible it becomes to arrive at a valid estimate of the knowledge displayed in a given manuscript.

It is the purpose of this demonstration to discredit an examination system which is in more or less universal use throughout the medical schools. Such a system, because of its significance and power, should certainly be reliable and as nearly above criticism and the influence of chance as possible. I believe that the exact opposite has been shown to be true. I believe that the usual written essay question in use today is most unreliable and should be condemned. If it has any use at all, marked modification or change in design seems imperative. If reliability in grading cannot be assured, it should be abolished. At the University of Buffalo for the last four years we have used a better type of examination, which has received the enthusiastic endorsement of both students and faculty. It is, in our opinion, a superior examination in that it is more comprehensive as well as inclusive. Consisting entirely of short answer, "objective test" questions, it requires in the answering a maximum amount of thinking with a minimum amount of writing. The ability to judge knowledge and judgment, as well as the power of correlation and interpretation, is not sacrificed. It must be, and is, designed with the greatest of care and takes months in preparation. This is compensated for, however, in the fact that it can be graded quickly, easily and reliably.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 22-24. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: *Basic Science*. Little Rock, May 3. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular)*. Little Rock, June 17-18. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic)*. Little Rock, May 11. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity*. San Francisco, May 9. *Examinations*. San Francisco, June 28-July 1, and Los Angeles, July 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science*. New Haven, June 12. *Prerequisite to license examination*. Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Homeopathic)*. Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven. *Medical (Regular)*. Hartford, July 13-14. *Endorsement*. Hartford, July 27-28. Sec., Dr. Thomas P. Murodock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, June 28-29 (probable dates). *Medical*. Washington, July 12-13. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 14-15. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

ILLINOIS: Chicago, June 22-25 and Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 22-24. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, 301 State House, Indianapolis.

IOWA: Iowa City, June 8-10. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.

KENTUCKY: Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MARYLAND: *Medical (Regular)*. Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic)*. Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.

MINNESOTA: Minneapolis, April 20-22. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 14-16. State Health Commissioner, Dr. H. F. Parker, State Capitol Bldg., Jefferson City.

NEBRASKA: *Basic Science*. Omaha, May 4-5. *Medical*. Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 3-4. Sec., Dr. John E. Worden, Box 630, Carson City.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical*. Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science*. Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 22. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

VERMONT: Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 17-19. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS
SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, April '10, page 1291.

Montana October Report

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held at Helena, Oct. 6-7, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined, all of whom passed.

Sixteen physicians were licensed by reciprocity and 2 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School.....	(1934)		83.2,
88.5, (1935) 83.7, (1936) 84.4			
Johns Hopkins University School ..			84.8
University of Minnesota Medical ..			81.5
Creighton University School of ..			79.5
Syracuse University College of ..			81.7
Jefferson Medical College of Philadelphia.....	(1930)		82.5

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical "	"	(1931)	California
Northwestern Unive "	"	(1909)	Utah
Rush Medical Colle		(1927)	California
Keokuk Medical College, College of Physicians and Surgeons, Iowa ..		(1901)	Iowa
University of Michigan Medical School.....		(1931)	Michigan
Wayne University College of Medicine.....		(1936)	Michigan
University of Minnesota Medical School.....		(1928), (1929), (1930) Minnesota	
St. Louis University School of Medicine.....		(1934)	Missouri
Creighton University School of Medicine.....		(1933)	N. Dakota,
(1935) California			
University of Pennsylvania School of Medicine.....		(1929)	Minnesota
Milwaukee Medical College.....		(1911)	Wisconsin
Universität Köln Medizinische Fakultät.....		(1920)*	Nebraska

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists.....		(1936)	N. B. M. Ex.
Johns Hopkins University School of Medicine.....		(1931)	N. B. M. Ex.

* Verification of graduation in process.

Hawaii October Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, Oct. 12-15, 1936. The examination covered 10 subjects and included 80 questions. An average of 75 per cent was required to pass. Six candidates were examined, 2 of whom passed and 4 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Illinois College of Medicine.....	(1934)		85
Hahnemann Medical Col. and Hospital of Philadelphia..	(1918)		82

School	FAILED	Year Grad.	Per Cent
Loyola University School of Medicine.....	(1930)		76,*
(1936) 75*			
Washington University School of Medicine.....	(1931)		76*
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1936)		72†

Three physicians were licensed by endorsement from July 31 through August 18 after an oral examination. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Tufts College Medical School.....	(1935)		N. B. M. Ex.
University of Minnesota Medical School.....	(1935)		N. B. M. Ex.
California Univ. College of Physicians and Surgeons..	(1935)		N. B. M. Ex.

* Failed in three or more subjects.
† Verification of graduation in process.

Oklahoma Reciprocity and Endorsement Report

Dr. James D. Osborn Jr., secretary, Oklahoma State Board of Medical Examiners, reports 20 physicians licensed by reciprocity and one physician licensed by endorsement at the meeting held in Oklahoma City, December 9, 1936. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine.....	(1935)		Arkansas
College of Medica ..			California
Denver and Gross ..			Wyoming
University of Color ..			Colorado
Emory University ..			Georgia
Northwestern University Medical School.....	(1934)		Illinois
State University of Iowa College of Medicine.....	(1927), (1930), (1931) Iowa		
University of Kansas School of Medicine.....	(1935, 2)		Kansas
Tulane University of Louisiana School of Medicine.....	(1935)		Louisiana
Johns Hopkins University School of Medicine.....	(1930)		Maryland
Harvard University Medical School.....	(1929)		Maine
Washington University School of Medicine.....	(1912), (1923)		Missouri
University of Nebraska College of Medicine.....	(1934)		Nebraska
University of Buffalo School of Medicine.....	(1918)		New York
Vanderbilt University School of Medicine.....	(1924)		Tennessee
Baylor University College of Medicine.....	(1935)		Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine.....	(1929)		N. B. M. Ex.

Book Notices

Practical Examination of Personality and Behavior Disorders, Adults and Children. By Kenneth E. Appel, M.D., Ph.D., Sc.D., Assistant Professor of Psychiatry, Medical School, University of Pennsylvania, and Edward A. Strecker, M.D., A.M., Sc.D., Professor of Psychiatry, Medical School, University of Pennsylvania. Cloth. Price, \$2. Pp. 219. New York: Macmillan Company, 1936.

This volume is an outline of examination methods to be used by psychiatrists, particularly by those in training. Parts have apparently been used in training students. It is made up of two parts, the first dealing with the adult, the second with the examination of the child. In the adult section one finds a conglomeration of examination methods consisting of outlines of what to look for on mental examination and on personality study. There are presented several approaches to the same problem, such as the questions asked on mental examination, outline of information to be obtained, and examination of stuporous patients. Three types of chapters are found in this part: one, how to examine in general, consisting of essays which present quite generalized techniques; a second, giving outlines directed toward showing what specific items to look for, and a third type showing reporting forms for summarizing observations. The second part treats of child guidance examination techniques, two types of information being made available: first, outlines are presented for the results of teachers', parents' and the psychiatrist's examinations in the case; the second variety of information consists of short chapters devoted to questions concerning lying, temper tantrums and other symptoms of maladjustment, which apparently are intended as suggestions in the matter of questioning a parent of the problem child. In the middle of this group of chapters is one on enuresis in which the condition is outlined. The chapter is not like the others in style or purpose. One must agree with the authors that there is at the present time no effective outline showing a student how to conduct a psychiatric examination, but there is a good reason for this state of affairs. Psychiatry depends on individual adjustments. The technic of one leader in the field often turns out a number of disciples who use the same technic but with signally less success. Usually the adequate student develops, under personal guidance, a useful method. Then he needs no outline. Before that a written guide is misleading in that it gives him a false assurance and stereotypes him. The general instructions given in the present volume on how to interview prove that the written word is no more helpful in making a psychiatrist than a book on how to succeed might be in making a millionaire. There is at the present time only one road to become a psychiatrist and to learn psychiatry, even for the dilettante physician, and that is by watching competent psychiatrists at work and examining patients oneself under the direction and guidance of experienced mental experts. Some of the summaries in the present volume are lists of words, without background. They mean nothing and may be pernicious. There is no point to the last chapter, entitled *Psychiatric Terminology*, for it is a mere list of words where a real glossary might have meant something. The uneven style, the short chapters containing little, and the universal outlines suggest that the authors met one day in their office and decided to write a book, which they did by culling various outlines from their files without too much revision. They have forgotten the fact that psychiatry is the one medical specialty that is on trial before the profession and the public, and an influx of incompetent amateurs might cause a major setback in its development.

Atlas der Gastrophotographie. Von M. J. Heilpern, O. Porges und H. Hofmann. Paper. Price, 10 marks. Pp. 29, with 45 illustrations. Leipzig & Vienna: Franz Deuticke, 1936.

Heilpern and Porges inaugurated modern gastrophotography in 1929. Two years later two French books appeared on this subject, the authors of whom used Heilpern's apparatus and technic. The inaugurators of the method are now publishing the first German book. Every one who has expected to find decisive progress in this field will be deeply disappointed. The method seems to have reached a deadline. However, in the preface in the first time during the history of gastrophotography a fair comparison of gastroscopy is given. "Gastroscopy has been improved by the construction of the flexible tube and

now can be considered a safe method, which is easily learned. Definite areas of the stomach can be obtained more easily by the gastroscope than by the gastrophotograph. Gastroscopy has the advantage of showing the colors: this facilitates the diagnosis. However, gastrophotography still has the advantage of giving documents instead of short, gastroscopic, subjective impressions; furthermore, the local anesthesia is avoided and the gastrophotograph lies for a much shorter period in the stomach than does the gastroscope." The two latter advantages are imaginary, but the first, the possibility to present the gastric mucosa on objective documents, would be of importance if such objective documents were available. But apparently they are not. Perhaps it would not be fair to compare the numerous pictures of this book with the brilliant pictures as seen through a gastroscope. However, the comparison of these photographs with the photographs obtained through the old rigid gastroscopes (which also were unsatisfactory) shows that "blind" gastrophotography is of no avail. Only figures 23, 35, 37 and 57b correspond somewhat with certain gastroscopic pictures. A definite diagnosis would be impossible even in these cases. The pylorus never can be photographed. If one considers all the books and papers that have appeared since the invention of gastrophotographic apparatus, one can but regret the tremendous efforts of so many excellent workers, which have had such poor final results.

Mrs. Eddy Purloins from Hegel: Newly Discovered Source Reveals Amazing Plagiarisms in Science and Health. By Walter M. Haushalter. Cloth. Price, \$1.50. Pp. 126, with 2 illustrations. Boston: A. A. Beauchamp, 1936.

Mark Twain in 1907 challenged Mary Baker Eddy's authorship of *Science and Health*. The greatest humorist surmised that the source of much of *Science and Health* was some unknown author who died before his work gained public attention. Other students also have questioned Mrs. Eddy's authorship of *Science and Health*. The purpose of this small book by Walter M. Haushalter is to show that these skeptics were correct, as well as to show the source from which Mrs. Eddy "purloined" much of her famous book. In the long search for the possible original source of *Science and Health* conducted in the leading American libraries from coast to coast, every idealistic writing antedating 1870 was inspected. One day in Stoughton, Mass., some one recalled that a Mr. Minot Crane, formerly associated with Hiram Crafts, was a partner of Mrs. Eddy in an office for the practice of healing by mental means. This partnership, however, was short lived, as dissension arose. Mr. Crane lived across the street from Hiram Crafts. He was for thirty years an elder in the Baptist church and was regarded as one of the leading citizens of his community. Mrs. Eddy had lived in the Crafts home in the city of Avon and during that period Crane was a confidant of Hiram Crafts. After several conversations with Mr. Crane, he disclosed that he possessed a carefully wrapped parcel which Mr. Crafts had given him in the early eighties when he departed from Avon and Stoughton. Crafts also divulged the significance of the package and its intimate relation to Mary Baker Eddy's book *Science and Health*, hoping that some day the facts would be made public. The contents of this package were found to comprise a letter written to Hiram Crafts by Francis Lieber and also a beautifully written document of twelve pages entitled "The Metaphysical Religion of Hegel," also written by Dr. Lieber. Crane consented to dispose of this document and letter, which are reproduced in the book under review. The author places side by side for comparison numerous parts of Dr. Lieber's document and parts of *Science and Health* to show that the foundation of that philosophy, if such it may be called, was "purloined" from Lieber's philosophical treatise of Hegelian metaphysics. Hegel, the author says, was the flower of German metaphysics, whose works, comprising eighteen large volumes, were published just after his death in 1832. The present author reviews the philosophy of Hegel briefly. Francis Lieber, author of the now famous source document, likewise was born in Germany. He received the degree of doctor of philosophy at the University of Jena in 1820 and came to Boston in 1827, where he worked on the *Encyclopedia Americana* and published a translation of a French work on the revolution. He moved to New York in 1832, where he was commissioned to prepare a plan of education and instruction for Girard College, which took him to Phila-

delphia. Then he became professor of history and political economics in South Carolina College, remaining in Columbia, S. C., for more than twenty years. In 1857 he was elected to a similar professorship in Columbia College, New York, and later to the chair of political science in the law school, where he remained until his death in 1872. Lieber was a member of the Kantian Society. The Source Document bears the memorandum "Copied for Hiram Crafts, to be read before the Kantian Group, Boston Lyceum, 1866." Science and Health was published in 1875, eight years after Mrs. Eddy's stay in the Crafts home and three years after Dr. Lieber's death. In comparing these two documents the author points out that on page 85 of Dr. Lieber's document he said "Hegel's science brings to light truth and its supremacy," which statement Mrs. Eddy is said to have changed on page 293 of Science and Health to "Christian Science brings to light truth and its supremacy." A similar substitution appears in the following quotation from Lieber's document: "That spirit propagates matter or matter spirit, is morally impossible. Hegel repudiates the thought" (p. 86). Mrs. Eddy changes, the author says, these sentences to read as follows: "That spirit propagates matter or matter spirit, is morally impossible. Hegel repudiates the thought." (This is on page 264 of Science and Health.) There are many other comparisons of the two documents made here.

The addenda to this book was entitled "Mrs. Eddy's Later Plagiarisms," meaning those instances which occurred from 1895 to 1905. It is said that she took also from Carlyle, Ruskin, Amiel, Hugh Blair and Quimby. The following quotation from Mrs. Eddy's Science and Health appears on page 1 of Haushalter's book:

"No human pen nor tongue taught me the Science contained in this book, Science and Health. . . . I have found nothing in ancient or in modern systems on which to found my own, except the teachings and demonstrations of our great Master and the lives of prophets and apostles. The Bible has been my only authority. I have had no other guide in 'the straight and narrow way' of Truth." (Science and Health, pp. 110, 126.)

The Christian Science Board of Directors, disbelieving the authenticity of this book, submitted specimens of Mrs. Eddy's handwriting and specimens of Francis Lieber's handwriting to some handwriting experts, who said that neither the letter in question nor the manuscript in question nor the purported signatures were in the handwriting of Francis Lieber, and that neither the notation in question nor the purported signature of Mary Baker was in the handwriting of Mary Baker Eddy.

Trudy Instituta Mozga. Vypusk II. Pod redaktsley S. A. Sarkisova i I. N. Filimonova. Les travaux de l'Institut du Cerveau. Volume II. Cloth. Price, 18 rubles 75 kopecks. Pp. 278, with 21 illustrations and atlas containing 27 microphotographic plates. Moscow: Izdanie Gosudarstvennogo Instituta Mozga, 1936.

This volume, emanating from the Brain Institute in Moscow, presents four papers. In "Ontogenesis of the Isocortex in Man," G. I. Poliakov describes the anatomy of the isocortical part of the lamina corticalis in a human embryo whose crown-coccyx length was 90 mm. In a paper entitled "Variability of the Structure of the Cerebral Cortex of the Temporal-Basal Region of the Adult," P. S. Blinkov presents an anatomic study of ten human cerebral hemispheres. J. Shevchenko presents a paper on "The Variability of the Cerebral Cortex in Higher Anthropoids," and A. S. Chernyshev on the anatomy of "The Superior Limbic Region in Monkeys." A separate atlas consisting of eighty photomicrographs, illustrating the work of the authors, accompanies the text.

The Principles of Dental Medicine: The Medical Aspects of Dental Disease. By F. W. Broderick, M.R.C.S., L.R.C.P., L.D.S., Hon. Dental Physician to the Royal Victoria and West Hants Hospital, Bournemouth. Second edition. Cloth. Price, \$7.50. Pp. 575, with 27 illustrations. St. Louis: C. V. Mosby Company, 1936.

The author discusses the effect of the development of specialization on the practice of medicine and emphasizes the fact that the medical profession and to a still greater extent the dental profession have devoted most of their energy to the repair of the damage produced by disease rather than to the cure or prevention of disease. He follows the development of ideas in the history of medicine and points out how this development has contributed to the present condition. He discusses diathesis and emphasizes the well known clinical observation that teeth are lost either by caries or by pyorrhea and that

in general the patient with caries does not have pyorrhea and the patient with pyorrhea does not suffer with decay of the teeth; he indicates that each of these two dental conditions is associated with different types of disease in the other organs and tissues of the body. The book is stimulating and challenges thought. Although there may be some differences of opinion concerning details, such as the author's view on the vitality of the dental enamel, it is indeed encouraging to find one who is willing to review and reessay fundamental concepts in terms of the newer developments of knowledge. Broderick makes it clear that dentistry cannot be separated from the whole of medicine and that in the study of the initial deviations from normal which lead to disease there are early indications that are of great advantage to the dentist in the study of pathology. The book should have the attention of both physicians and dentists; it is certain to arouse differences of opinion that will provoke thought and discussion.

Die Nebennierenrinde: Beiträge zur experimentellen und klinischen Pathologie. Von Dr. med. Sigismund Thaddeus, Assistent der II. Med. Universitätsklinik der Charité, Berlin. Paper. Price, 11 marks. Pp. 199, with 114 illustrations. Leipzig: Georg Thieme, 1936.

The author presents a superficial review of much of the literature on the adrenal cortex and includes some recent experimental and clinical studies made in Berlin. This work is largely repetition or confirmation of original studies conducted and published elsewhere. The author's own contributions in this field are represented by eight papers (chiefly clinical) published in 1935 and 1936. The limited portion of the book concerned with clinical use of adrenal cortex extract includes treatment of conditions that are by no means proved to be associated with disturbed function of the adrenal cortex. Concerning adrenal cortex extracts, mention is made of four German proprietary products with special preference for a particular one of these, available in liquid form for parenteral administration and in tablets for oral use. As is the case with all other commercial preparations of the adrenal cortex, there is no proof that this particular product can substitute for functional loss of the cortical hormone. Especially is this true of tablets for oral administration. Yet page after page in the book is devoted to experimental and clinical observations in which the use of this particular commercial product is represented as supplying the adrenal cortex "hormone." Indeed, so striking is the frequent reference to this proprietary product that perusal of the monograph leaves an impression much like that gained from reading the publications distributed to physicians by some commercial pharmaceutical firms.

Modern Urology in Original Contributions by American Authors. Edited by Hugh Cabot, M.D., LL.D., C.M.G., Professor of Surgery, The Mayo Foundation. Volume I: General Considerations—Diseases of Penis and Urethra—Diseases of Scrotum and Testicle—Diseases of Prostate and Seminal Vesicles. Volume II: Diseases of the Bladder—Diseases of the Ureter—Diseases of the Kidney—Radiation Therapy of Tumors of the Genito-Urinary Tract. Third edition. Cloth. Price, \$20, per set. Pp. 951, with 558 illustrations; 862, with 383 illustrations. Philadelphia: Lea & Febiger, 1936.

The first edition of this book appeared about twenty years ago at a time when urology in America was a young specialty. Within the twelve years since the second edition was published, many advances have been made in the practice of urology, necessitating now the rewriting of many of the articles. The present edition has been so thoroughly revised as to constitute almost a new work. Many of the thirty-five contributors to the present two volumes are also new as such, even though they are widely known within the profession. They were selected, it is said, in order to present the widest possible representation of urologic opinion in America. They include leading diagnosticians, therapists, surgeons and pathologists in the field of urology. Emphasis is placed throughout on diagnosis and treatment. The two volumes are profusely and unusually well illustrated, mostly by original illustrations. Volume I opens with a chapter on the history of the cystoscope. Bozzani constructed in 1805 his "licht liter," with which he was able for the first time to visualize the human urethra in the living subject. This bold inventor was accused of showing an undue curiosity in investigating the concealed regions of the human body, and the medical faculty of Vienna was charged by the Austrian government to investigate his radical instrument. Twenty years later a second attempt was made to look into the urinary tract by

Segalas, who called his instrument the "speculum urethro-cystique." At about the same time Dr. John D. Fisher of Boston described an instrument originally constructed to inspect the vagina but later modified so it could be used to inspect the urethra. Twenty years passed again before there was any advance in instruments of this kind; then in 1853 Desormeaux brought forth an endoscope in which rays of light were reflected down the tube by means of mirrors, the source of which was a kerosene lamp. So this interesting history of the cystoscope goes on to the present day. Chapters on the anatomy of the genito-urinary organs follow; also on tumors of these organs, on gonorrhea, syphilis, lymphogranuloma inguinale, calculi and renal infections, including a large chapter on tuberculosis of the kidney and ureters, cystitis and other diseases. The treatment of all these conditions is adequately discussed, and those which are amenable to surgical operations especially are beautifully illustrated in detail, including a few illustrations in color. An index closes each volume. In its present form Cabot's Modern Urology is thoroughly modern and is comprehensive and authoritative.

Occupation and Health: Encyclopaedia of Hygiene, Pathology and Social Welfare. Volume I: A-H; Volume II: I-Z. International Labour Office. Cloth. Price, \$24, per set. Pp. 999, with 181 illustrations; 1,310, with 207 illustrations. Boston: World Peace Foundation; Geneva, 1930, 1934.

The increasing interest in industrial disease and in the problems in health arising from industry make especially valuable the preparation of this encyclopedia. In its development, competent industrial physicians and surgeons from all over the world have participated. The subjects concerned are classified under the headings of the work itself, the worker and the environment. Toxic substances like acetone, for example, are discussed under headings which indicate the nature of the substance, its method of preparation, its uses, the means for detecting its presence, legislation affecting the substance and the bibliographic references. Under more widely used substances, as, for example, acetylene, there are also references concerning statistics, diagnosis, symptoms and hygiene. There are extensive articles on accidents in industry, resuscitation devices, canning and food preserving, effects of industry on children and young people, and many similar topics. Particularly interesting is a discussion of industrial diseases associated with hair cutting and the work of furriers. Numerous illustrations show how industrial processes vary throughout the world. Every worker in industry and every journalist and library concerned with the effects of industrial disease will find these volumes invaluable.

Remington's Practice of Pharmacy: A Treatise on the Making, Standardizing, and Dispensing, of Official, Unofficial, and Extemporaneous Pharmaceutical Preparations, with Descriptions of Medicinal Substances, Their Properties, Uses, and Doses, and Such Other Professional Service in Connection with Community Health as the Pharmacist may be Called Upon to Render. Intended for the Use of Pharmacists and Physicians and as a Textbook for Students. By E. Fullerton Cook, P.D., Ph.M., Chairman of the Committee of Revision of the Pharmacopoeia of the United States of America, Charles H. LaWall, Ph.M., Pharm.D., Sc.D., Dean of Pharmacy, Philadelphia College of Pharmacy and Science, and others. Eighth edition. Cloth. Price, \$10. Pp. 2,162, with 702 illustrations. Philadelphia & London: J. B. Lippincott Company, 1936.

This textbook, previous editions of which have occupied important places in the pharmacists' libraries for several generations, has been revised to conform with the United States Pharmacopoeia XI, the National Formulary VI, and New and Nonofficial Remedies 1936. The scope of the volume is broad, covering thoroughly pharmaceutical knowledge and practice. It is a monumental piece of work in its field. Therapeutic uses for the individual drugs and their preparations are given. Although the therapeutic discussions are not highly critical, they are more conservative than in most books of this type. The chemistry and therapeutic use of glandular products have been revised and enlarged to conform with recent knowledge. This is a most reliable chapter. A new section on hospital pharmacy has been added, though the waning homeopathy is still represented. The book is complete with information on such topics as laws dealing with pharmacy, urinalysis, general description of the U. S. Pharmacopoeia and the National Formulary, sterilization and ampules, methods of making pills and tablets, and even such topics as ligatures and sutures. In this work Professors Cook and LaWall have the helpful aid of

more than thirty collaborators. The book also contains many illustrations; typographic errors are quite occasional. The volume is a contribution that rightly retains its place among the best in textbooks on pharmacy. It will serve well the physician who wishes to augment his library with a representative pharmaceutical work.

Medizinische Praxis: Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, leitender Arzt der medizinischen Klinik des Rudolf-Hess-Krankenhauses Dresden, Prof. Dr. A. Fromme, Direktor der chirurgischen Abteilung des Stadtkrankenhauses Dresden-Friedrichstadt, und Prof. Dr. K. Warnekros, Direktor der staatlichen Frauenklinik zu Dresden. Band XIV: Elektrokardiographie für die ärztliche Praxis. 15 Vorlesungen zur Einführung in die elektrische Untersuchungsmethode des Herzens und ihre praktischen Ergebnisse bei rhythmischem und arrhythmischem Herzschlag. Von Prof. Dr. Erich Boden. Third edition. Paper. Price, 10 marks. Pp. 187, with 101 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1936.

This edition has been increased in size by some thirty pages and is much better assembled than the preceding edition. However, in comparison with other books both in German and in English dealing with the subject, this one is somewhat inferior. Not much is said about the precordial lead in infarction of the heart. The terminology with regard to ventricular extrasystoles and bundle branch block used by the author is no longer followed. Many of the electrocardiograms are touched up, and the illustrations presented to cover the various subdivisions might have been improved. Nevertheless, the diagrams with which this booklet is profusely illustrated should be stimulating not only to beginning students and medical practitioners but also to persons well versed in the subject.

Pathology. By Eugene C. Piette, M.D., Pathologist and Director of the Clinical Laboratories of the West Suburban Hospital, Oak Park, Illinois. Second edition. Fabrikoid. Price, \$1.75. Pp. 263, with 60 illustrations. Philadelphia: F. A. Davis Company, 1936.

This little book was written to provide training for nurses in a few elementary principles of pathology. The author has attempted to present briefly a few of the most important problems. The list of questions at the end of each chapter helps to facilitate comprehension. Considerable emphasis is placed on the handling of specimens for laboratory work. The book evidences a sincere attempt to introduce the subject of pathology to nurses in training in as simple a manner as the short time at their disposal permits. It should fill its purpose admirably.

Plastic Surgery of the Nose. By J. Eastman Sheehan. Second edition. Cloth. Price, \$9. Pp. 186, with 235 illustrations. New York & London: Paul B. Hoeber, Inc., 1936.

This edition is more compact, more graphic and more practical than the first. The deformities are better classified and their correction described as problems of everyday practice. The author recognizes the fact that nasal deformities usually involve more than one aspect of the nose and that it is necessary to combine several procedures in order to regain the normal. His chapter on typical and distinctive operations therefore in the first part of the book leads the way to a better understanding of the classified corrections that are taken up in the succeeding chapters. Several of the author's procedures differ somewhat from the Joseph technic, which most rhinoplastic surgeons have adopted, but all of them are based on sound surgical principles. The rationale of his technic is clearly explained and numerous illustrations bring home forcibly the important details. His description of the costal cartilage implant for saddle nose is still preeminent. The book is neither too long nor too involved, which should recommend it to surgeons in general as well as to rhinologists and oral surgeons.

Veröffentlichungen aus der Konstitutions- und Wehrpathologie. Herausgegeben von L. Aschoff, W. Ceelen, W. Koch und P. Schürmann. Geleitet von W. Koch. Heft 38. Band IX, Heft 1: Renaler Zwerzwuchs. Von Alfred Welz. Paper. Price, 51 marks. Pp. 56, with 13 illustrations. Jena: Gustav Fischer, 1936.

This monograph on renal dwarfism develops the subject from the standpoint of previous cases described in the literature with especial emphasis on the clinical picture, the pathologic anatomy and the pathologic physiology. Two cases studied by the author are carefully described. Eighty-six references are given. The author goes into great detail with regard to the relationship of the bone changes of so-called renal rickets. He also

discusses the significance of blood chemistry with particular emphasis on the changed calcium: phosphorus ratio. He concludes that the dwarfism is due in all probability to the development of growth-restraining substances arising in the body because of the increasing acidosis and toxicosis resulting from so-called chronic interstitial nephritis. He suggests the possibility that in this process certain hormones are destroyed.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Right of Examining Board to Redetermine Qualifications of Applicant.—William V. Dubin in 1925 was refused permission to take the examination for a license to practice medicine in Wisconsin because he lacked the statutory qualifications. The following year he again applied for an examination, presenting to the board a diploma from the Maximilian University of Würzburg, Germany, but, because the foreign credentials were neither translated nor verified, an examination was refused. In 1928 and 1929 Dubin's applications for permission to take the examination were denied, the board having had notice that the foreign diploma had been revoked. In June 1930 Dubin presented a statement from the American consulate certifying that the revocation of the diploma had been rescinded and Dubin was permitted to take the examination. He failed. Subsequently he was examined on six other occasions and failed each time. Following the last attempt, in 1934, the board permitted Dubin to take a special examination in one subject after he had signed an agreement that the board would not grade the examination paper until it had further satisfied itself concerning his qualifications. The agreement specified that the board would make its determination "by the time or at the time of the regular meeting of said board in January, 1935." At that meeting the board passed a resolution refusing to grade the examination paper and to issue a license for the reason that "said Dubin has not completed the required medical studies to entitle him to practice medicine and surgery, or to graduate from a reputable medical college, and is not intellectually, morally or professionally qualified to practice medicine and surgery in the state of Wisconsin." Thereafter Dubin sought a writ of mandamus to compel the board of medical examiners to grade his paper and to issue to him a license to practice in Wisconsin. The trial court denied the petition and Dubin appealed to the Supreme Court of Wisconsin.

Dubin first contended that the agreement exacted from him as a condition to his taking the special examination was discriminatory and beyond the power of the board. The wisdom of this administrative procedure, said the court, may well be questioned, but it could hardly be condemned on either of the grounds assigned. Since Dubin was not entitled under the rules of the board to a special examination, the granting of it was a concession to him, and if there was discrimination, it was in his favor, and there was no reason, the court said, why the board might not condition this concession on a recanvass of the facts bearing on Dubin's qualifications. The medical practice act provided that the board must find Dubin qualified before it could issue a license to him. The term "qualified" has reference to the moral, professional, educational and intellectual qualifications of the applicant, and the board, even after accepting as *prima facie* satisfactory a showing by an applicant on any of these matters, may reinvestigate and come to a different conclusion provided the ultimate judgment is not arbitrary or capricious.

The ultimate question in the case, said the court, was whether the action of the board was arbitrary and capricious. The record showed that Dubin attended Marquette University School of Medicine during the school year 1918-1919, and that because of his poor scholastic record he was advised to repeat the work of the first year. During the summer sessions of 1919 and 1920 he earned some credits in the University of Wisconsin Medical School and was permitted in the fall of 1920 to reenter

Marquette and take second year work on probation. He was dismissed from that university in February 1921 for dishonesty in examination and received no credit for the work done during the fall. Dubin claimed to have matriculated in Hahnemann Medical College in September 1921 as a third year student, but the evidence showed that he was admitted as a special student taking freshman work and that in October 1922 he was declined the privilege of further registration because of poor scholarship. He then matriculated at the St. Louis College of Physicians and Surgeons, "a class C school and rated a diploma mill by the board." Although he claimed to have graduated from that school, a supposedly complete list of graduates of the year of his claimed graduation did not include his name. While Dubin claimed to have entered the University of Freiburg in Germany some time in February 1925 and to have pursued there all the necessary medical courses, advices from that school indicated that he entered the summer session of 1925 and merely took some relatively unimportant laboratory courses. Although Dubin claimed to have pursued medical studies at Maximilian University at Würzburg, he never matriculated there. By special dispensation he was permitted to present a doctor's thesis and take an examination at the school and was apparently granted a degree. Thus, observed the court, the school which gave the degree had had no supervision over the medical training of Dubin and gave the degree because of his preliminary work at other schools. This degree was later revoked by the Maximilian University because it had been "ascertained that the candidate does not possess the necessary preliminary education and that the conferring of the degree is based on incorrect statements and presuppositions." In 1930, after representations made to the ministry of state through the office of the American consul, the action revoking the degree was rescinded "because there was no guilt on Dubin's part." It will be noted, said the court, that the action rescinding the revocation of the degree made no finding that the original action of revocation was founded on mistake. A refusal to grant a license on the foregoing facts cannot, said the court, be the basis for a claim of arbitrary conduct by the board.

Dubin next contended that he had no hearing or opportunity to be heard when the board finally acted on his case. This contention, said the court, was without merit. The action was taken by the board at a regular meeting. The time of such meeting was regulated by statute. Whatever materiality the agreement signed by Dubin might have, it was clear that it notified him that action on his preliminary training and general qualifications would be taken at the regular meeting of the board in January 1935. This was a sufficient notice, and Dubin could have appeared and presented to such meeting any matters germane to the inquiry.

The Supreme Court concluded, therefore, that the trial court correctly held that Dubin was not entitled to a writ of mandamus.—*State ex rel. Dubin v. Wisconsin State Board of Medical Examiners (Wis.)*, 268 N. W. 116.

Pharmacy Practice Acts: Sale of Aspirin (Acetylsalicylic Acid) by Grocer.—The pharmacy practice act of Montana declares it to be unlawful, with certain exceptions not here pertinent, for any person other than a registered pharmacist to sell at retail any drug other than a "patent" or proprietary medicine in the original package. The defendant, a retail grocer, was convicted of violating this act under a complaint charging him with selling an original package of aspirin. He thereupon appealed to the Supreme Court of Montana.

It was testified at the trial, said the court, that aspirin is a drug and it was shown that aspirin is usually held not to be a proprietary or "patent" medicine within the meaning of acts similar to the one here involved. The question before the court was the constitutionality of the limitation to pharmacists of the sale of drugs in manufacturer's original packages. All decisions agree, said the court, on the validity of statutes licensing pharmacists and prohibiting the sale by persons other than licensed pharmacists of drugs and medicines which are compounded by the vender or sold by him in any manner other than in the original package of the manufacturer. A diversity of opinion arises, however, concerning the constitutionality of

acts with reference to medicine and drugs sold in the original package of the manufacturer. The arguments advanced to sustain the constitutionality of such acts did not appeal to the Supreme Court of Montana. On the other hand, the court quoted extensively, with apparent approval, from *State v. Wood*, 51 S. D. 485, 215 N. W. 487, decided by the Supreme Court of South Dakota and involving the sale of a proprietary medicine. Said that court, in part:

Both the briefs of appellant and of the amicus curiae seem to assume that restricting the sale of such medicines to registered pharmacists will protect the public from all the ills that might result from unrestricted sale. But they do not point out how the public are protected. It is suggested that a pharmacist, to obtain his license, must be of good moral character, and that would protect the public from verbal misbranding, fraud, and dangerous medicines; but why restrict the sale to pharmacists only, when there are many other men of good moral character? If moral character is a sufficient guaranty, the statute might require vendors to be men of good moral character; but there can be no reason for requiring them to be druggists. Again, it is urged that pharmacy is a profession with a code of ethics; but pharmacy is not the only profession with a code of ethics. It is argued that pharmacists have knowledge of the effect of medicines they sell; this is no doubt some protection against accidental injury resulting from ignorance, but it is not plain that pharmacists do know the ingredients of patent and proprietary medicines, or that they are required to use or possess any knowledge in making a sale of such medicines. If one has a doctor's prescription filled at a drug store, he buys not the medicine alone, but the druggist's knowledge and skill in dispensing it; but if he were to buy Watkins' Pain-Oleum at the drug store, what more would he buy than if he bought elsewhere?

It does not seem that merely selling an article, though that article be medicine, can be classed as the practice of a learned profession. It would seem that the practice of a profession ought to call in use the learning peculiar to the profession. . . . It would seem to be an unreasonable exercise of the police power to limit sales to the profession, without requiring anything of the profession to safeguard the public health.

Taking into consideration, said the Supreme Court of Montana, that the pharmacy practice act absolves pharmacists from all responsibility as to the purity, strength and quality of drugs or medicines which are sold in the manufacturer's original packages, no justifiable reason exists for arriving at the conclusion that to limit the sale of such articles exclusively to pharmacists can in any way tend to protect or preserve the public health. The court therefore held the pharmacy practice act unconstitutional so far as it restricted to pharmacists the sale of drugs and medicines sold in the manufacturer's original packages. The judgment of the trial court was reversed and the cause remanded with direction to dismiss the complaint.—*State v. Stephens (Mont.)*, 59 P. (2d) 54.

Malpractice: Radium Left in Patient; Accrual of Right of Action.—The defendant, a physician, inserted ten "radium beads" in the uterus of the plaintiff's wife, Jan. 18, 1929, for a condition diagnosed as cancerous. According to the record, one of these "beads" was supposed to be removed each succeeding day by means of a string attached to it. At the expiration of the ten-day period the defendant advised the plaintiff and his wife that all the "beads" had been removed. Despite this assurance, it was alleged, four "beads" were left in the uterus. They severely burned the plaintiff's wife, migrating to the intestine. Peritonitis set in about March 1, 1935, resulting in the death of the wife on March 18. The plaintiff thereupon sued the defendant for damages for the death of his wife. The trial court overruled a demurrer filed by the defendant to the petition and he appealed to the Supreme Court of Kansas.

The only question before the Supreme Court was whether or not the action was barred by the two-year statute of limitations. The defendant contended that the right of action accrued when, at the expiration of the ten-day period, he failed to remove the last "bead." The suit was barred by the statute of limitations, said the Supreme Court. If a plaintiff seeks to recover damages from a physician on account of alleged malpractice, the action sounds in tort and the two-year statute of limitations applies and is not tolled by concealment of the tort by the physician. The right of action accrues when the tort is committed. In an action based on wrongful death where the statute of limitations had run against an action by the injured party, an action by his personal representatives under the wrongful death statute is also barred. The judgment of the trial court overruling the defendant's demurrer was therefore reversed.—*Graham v. Updegraph (Kan.)*, 58 P. (2d) 475.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. C. West, 535 North Dearborn St., Chicago, Secretary.
- Alabama, Medical Association of the State of, Birmingham, April 22-23. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American College of Physicians, St. Louis, April 19-23. Mr. E. R. Loveland, 4200 Pine St., Philadelphia, Executive Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Botes, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 1. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghorrmley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Pediatric Society, Hot Springs, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Physiological Society, Memphis, Tenn., April 21-24. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Currier Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 1. Dr. J. M. Hayman Jr., 2065 Adelbert Road, Cleveland, Secretary.
- American Society for Experimental Pathology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- American Society for Pharmacology and Experimental Therapeutics, Memphis, Tenn., April 21-24. Dr. E. M. K. Geiling, 947 East 88th St., Chicago, Secretary.
- American Society of Biological Chemistry, Memphis, Tenn., April 21-24. Dr. H. A. Mattill, Chemistry Building, State University of Iowa, Iowa City, Secretary.
- American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia, Medical Society of the, Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Federation of American Societies for Experimental Biology, Memphis, Tenn., April 21-24. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.
- Georgia, Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Association, Hilo, April 30-May 2. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Carr, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munro, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. H. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.

Nebraska State Medical Association, Omaha, May 10-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
New Jersey Medical Society of Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
New York Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
North Carolina Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, 203 Ainsworth Bldg., McAlester, Secretary.
Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
Texas State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

cian or the skin of the patient or on instruments or supplies used during labor or the puerperium and are carried directly or indirectly to the genital tract of the patient. One or more of these factors may play a part in any given case.

Annals of Internal Medicine, Lancaster, Pa.

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- Tuberculosis of Pericardium: Study of Twenty Cases. C. S. Keefer, Boston.—p. 1085.
Fulminating Septicemia Associated with Purpura and Bilateral Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome): Report of Two Cases with Review of Literature. M. S. Sacks, Baltimore.—p. 1105.
Variations in Response to Therapy in Pernicious Anemia. L. Mary Moench, New York.—p. 1115.
Arachnodactyly and Status Dysraphicus: Review. R. H. Pino, E. L. Cooper and S. Van Wien, Detroit.—p. 1130.
Clinical Manifestations and Studies in Parenchymatous Hepatitis. H. A. Freund, Detroit.—p. 1144.
Pain and Pain Equivalents in Heart Disease. C. T. Burnett, Denver.—p. 1156.
*Angina Pectoris and Pernicious Anemia (Old Terminology): A Résumé of Literature, with Case Report. H. Stalker, Detroit.—p. 1172.
Bodily Build and Heredity in Coronary Thrombosis. Grace A. Goldsmith and F. A. Willis, Rochester, Minn.—p. 1181.
*Effectiveness of Trichlorethylene in Preventing Attacks of Angina Pectoris. W. S. Love Jr., Baltimore.—p. 1187.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Surgery, New York

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- Modern Prenatal Care. D. G. Morton, San Francisco.—p. 225.
Preparation of Patient for Delivery. A. First, Philadelphia.—p. 234.
Conduct of First Stage of Labor. W. E. Studdiford, New York.—p. 236.
Treatment of Third Stage of Labor. J. L. Baer, Chicago.—p. 246.
Resuscitation of the New-Born. A. A. Marchetti, New York.—p. 259.
Postpartum Care. F. L. Adair, Chicago.—p. 267.
Syphilis in Pregnancy. W. T. Daily, Brooklyn.—p. 281.
Pregnancy and Tuberculosis. H. B. Matthews, Brooklyn.—p. 293.
Diagnosis and Treatment of Abortion. A. H. Morse, New Haven, Conn.—p. 331.
*Prevention and Control of Puerperal Infection Due to Beta Hemolytic Streptococcus. R. G. Douglas, New York.—p. 352.
Newer Aspects of Pelvimetry. H. Thoms, New Haven, Conn.—p. 372.
Management of Transverse Presentation. A. K. Paine, Boston.—p. 383.
Management of Breech. H. C. Williamson, New York.—p. 386.
Justifiable Use of Obstetric Forceps. J. A. Harrar, New York.—p. 391.
Indications and Technic of Episiotomy. H. C. Taylor Jr., New York.—p. 403.
Retained and Adherent Placenta. A. C. Beck, Brooklyn.—p. 430.
Management of Abruptio Placentae: Review of Sixty-Five Cases. C. A. Gordon, Brooklyn.—p. 442.
Sterilization at Cesarean Operation. J. T. Smith, Cleveland.—p. 457.

Prevention and Control of Puerperal Infection Due to Beta Hemolytic Streptococcus.—Douglas states that hemolytic streptococcus infections are nearly always exogenous. The organisms are brought to the genital tract by the attendants or somewhat less frequently by the patient herself. Ascending infections, which represent a large percentage of the total incidence of the disease, are caused by organisms present in the vagina at the onset of labor, the chief example being anaerobic streptococcus infections. They may become invasive during labor or the puerperium because of changes either in the general condition of the patient or in the tissues of the genital tract initiated by labor and the puerperium. Contaminated material from the rectum can be carried into the vagina, during vaginal examinations or through operative intervention. In instances of infection arising in this manner, cultures of the lochia may yield such organisms as the colon bacillus, anaerobic gas bacilli (Welch bacillus) and various types of the nonhemolytic streptococcus. Contaminated urine may spontaneously carry the infecting organisms, usually members of the colon group, directly into the vagina. Organisms due to ineffective sterilization or disinfection are present on the hands of the obstetri-

Angina Pectoris and Pernicious Anemia.—Stalker reports a case of angina pectoris and hyperchromic macrocytic anemia (with aortic stenosis and regurgitation, coronary sclerosis, cardiac asthma and idiosyncrasy for morphine), with a summary of the literature bearing on this symptom complex. The anginal pains were relieved with glyceryl trinitrate but were less frequent when the blood picture approximated the normal or at least improved when a higher blood count was obtained. The theory has been propounded that anoxemia is a factor initiating angina, and it is conceivable that, in pernicious anemia, blood of poor quality might readily aid in the development of an anginal spell on slight provocation. Because the age period of these two diseases is approximately the same it may be a natural occurrence that they are found together in the same patient. It was felt by one investigator that patients with anemia do not often develop angina because of their general easy fatigue, which causes them to stop short of the danger point. But, as most patients with pernicious anemia do not have angina, the anemia alone cannot be a primary cause. Again, the pathologic changes in the heart muscle in pernicious anemia have been thought to be due to lack of oxygen from the fact that the coronary circulation is taxed to the upper limit, comparable to the effects of strenuous work. In general the consensus has been that there were no diagnostic abnormalities in the electrocardiograms and what changes were noted could be traced to a coincident cardiosclerosis.

Trichlorethylene in Preventing Attacks of Angina Pectoris.—At the suggestion of David Bryce, Love investigated the effect that trichlorethylene may have in preventing attacks of angina pectoris. Twenty-seven patients were given from two to four, usually three, inhalations of trichlorethylene daily. Sealed frangible glass ampules of 1 cc. are crushed in a handkerchief. The first inhalation has always been taken in the presence of a physician so that the immediate effect might be noted and the patient reassured, if alarmed. Thereafter, patients are advised to take the drug either while reclining or sitting, for marked lightheadedness often occurs and occasionally there is a brief loss of consciousness. The treatment is continued for three weeks. If no therapeutic effect has been achieved in this time, the use of trichlorethylene has been discontinued and the method considered ineffective. Should the treatment prove effective, the number of inhalations is reduced in each individual to the minimum consistent with adequate relief of symptoms. Lightheadedness lasts only a few moments and leaves the patient mentally clear. When the patient has been nervous and irritable and sleep has been restless, well marked sedation, loss of irritability and quiet sleep have usually followed the use of the drug. Six patients have been given trichlorethylene during immediate attacks of pain due to coronary thrombosis. In three of four cases seen within twelve hours of the onset of coronary thrombosis trichlorethylene afford relief from pain, proving more useful than morphine in one case and less useful in one case. In one case trichlorethylene was ineffective. In two more cases relief of pain followed the use of this drug but, because of the length of time elapsing from the occurrence

of the thrombosis to the initiation of inhalation treatment, disappearance of the pain cannot with certainty be attributed to the treatment. It is possible that trichlorethylene was more effective than morphine in one of these cases. When successfully used, it had the advantage over morphine of not causing constipation. Of the remaining twenty-one patients, eighteen had either arteriosclerosis or arteriosclerosis and hypertension combined. All these patients presented angina pectoris as a symptom of their disease. Of these twenty-one patients anginal seizures were prevented completely by the inhalations in eight; they were definitely diminished in frequency and severity in eight and moderately diminished in one. Four patients received no benefit from the inhalations. In seven patients it was noted that the pain recurred as severely as formerly whenever the inhalations were discontinued, the time elapsing before its recurrence varying from twenty-four hours to several weeks. While pure trichlorethylene in the recommended dosage does not seem to be toxic, it should be used with some caution owing to the reported cases of industrial poisoning due to this agent.

Archives of Neurology and Psychiatry, Chicago

37: 479-710 (March) 1937

- Histopathologic Studies in Experimental Poliomyelitis. J. A. Luhan, Chicago.—p. 479.
- Perivascular Changes in Acute Encephalitis Associated with Vaccination, Variola and Measles. K. H. Finley, Boston.—p. 505.
- *Heat Regulation in Chronic Encephalitis. I. Finkelman and W. Mary Stephens, Chicago.—p. 514.
- Neurologic Mechanism Concerned in Epileptic Seizures. P. I. Yakovlev, Waltham, Mass.—p. 523.
- Structure of Nerve Root: I. Nature of Junction Between Central and Peripheral Nervous System. I. M. Tarlov, Montreal.—p. 555.
- Phosphorus Content of Blood Serum During Epileptic Seizure. A. Weil and E. Liebert, Chicago.—p. 584.
- *Trichiniasis Involving Nervous System: Clinical and Neuropathologic Review, with Report of Two Cases. H. Most and M. M. Abeles, New York.—p. 589.
- Effects of Sodium Amytal and Other Drugs on Reactivity of Hypothalamus of Cat. J. H. Masserman, Chicago.—p. 617.
- Coincidence of Interparietal Syndrome and Automatic Changes of Posture in Case of Schizophrenia. L. von Angyal, Budapest, Hungary.—p. 629.
- *Use of Trichlorethylene in Treatment of Migraine: Preliminary Report, with Study of Six Cases. H. S. Rubinstein, Baltimore.—p. 638.
- Neural Mechanisms Controlling Palmar Galvanic Skin Reflex and Palmar Sweating: Consideration of Available Literature. C. W. Darrow, Chicago.—p. 641.

Heat Regulation in Chronic Encephalitis.—Finkelman and Stephens compared the increase in the oxygen consumption (metabolism or heat production) and the ability to maintain the normal body temperature in patients with chronic encephalitis and in normal subjects on exposure to cold. There was a greater gain in oxygen consumption in normal subjects on exposure to cold than in patients with chronic encephalitis. The least gain in oxygen consumption occurred in patients with chronic encephalitis treated with atropine. More marked differences were noted in the body temperatures on exposure to cold. Eight of the normal subjects showed an increase of temperature on exposure (overcompensation), whereas only one of the patients with chronic encephalitis, who was receiving treatment with atropine, reacted with an elevation of temperature. All the other patients reacted with a lowering of body temperature on exposure. There was a greater drop in the temperature of the normal subjects after the bath. This reaction did not occur, as a rule, in patients with chronic encephalitis, as after the bath the oral temperature did not drop further but rose instead. It is probable that the normal vasodilatation or reactive hyperemia did not occur in patients with chronic encephalitis. There was a greater loss in temperature as well as a lower oxygen consumption rate in the patients with chronic encephalitis while they were treated with atropine than after the use of atropine had been discontinued. The basal metabolic rate in patients with chronic encephalitis was higher than that in the normal subjects (average, 25.25 per cent as compared with —2.7 per cent). With treatment with atropine the metabolic rate in cases of chronic encephalitis was reduced, although it was still above normal. There was no correlation between the rigidity and tremors and any of the observations noted.

Trichinosis Involving Nervous System.—Most and Abeles epitomize the literature relating to the clinical manifestations and neuropathologic changes in trichinosis of the nervous

system. They cite two additional cases of trichinosis in which the mental and neurologic signs predominated. The mental picture was that of mild acute encephalitis in one case and of a chronic encephalopathic process with Korsakoff's features in the other. There were no clinical signs of meningeal irritation. Neither trichinae nor alterations in the number of cells and the globulin content were observed in the spinal fluid in either case. Focal neuralgic signs in the form of hemiparesis were seen in one case. Massive anasarca and other changes simulating the wet form of beriberi were observed in the patient who recovered, and failure of eosinophilia to develop was observed in the patient whose illness terminated fatally. A pathologic study including the nervous system was made in one case. Larvae of *Trichinella spiralis* were demonstrated in the brain substance. The pathologic changes seen in the brain were in the nature of widespread acute nonsuppurative encephalitis. The characteristic changes were the disseminated nodules, with and without parasites, and the perivascular and meningeal infiltrations, as well as the degenerative changes seen in most toxic conditions of considerable duration.

Trichlorethylene in Treatment of Migraine.—Because of the supposed association between trichlorethylene and the trigeminal nerve and because of the preponderant innervation of the dura by the trigeminal nerve, Rubinstein deemed it advisable to use this drug in the treatment of six patients having migraine. It appears that trichlorethylene is a valuable adjunct in the treatment of migraine. This opinion is based on the fact that during the year of its trial on the six patients consistently beneficial results were obtained. The use of the drug is not to serve as a substitute for a painstaking survey, since it is questioned whether the striking results obtained in case 1 would have occurred if the patient had not simultaneously been treated for the defects in personality and endocrine function. The probability concerning the mode of action of the drug is certainly against its direct influence on the underlying cause of the condition, since in accordance with the theories concerning the etiology of migraine it is almost certain that trichlorethylene fails to strike at the root of the difficulty.

Archives of Ophthalmology, Chicago

17: 399-538 (March) 1937

- Educational Standards of Ophthalmology That Must Be Met at This Time. W. B. Lancaster, Boston.—p. 399.
- Application of After-Image Test in Investigation of Squint. A. Bielschowsky, Hanover, N. H.—p. 408.
- The Principal Drainage Channels of the Eye. P. F. Swindle, Milwaukee.—p. 420.
- Choroideremia. A. J. Bedell, Albany, N. Y.—p. 444.
- Chemistry of Lens: VIII. Lenticular Metabolism. A. C. Krause, Chicago.—p. 468.
- Circulation of Aqueous: VI. Intra-Ocular Gas Exchange. J. S. Friedenwald and H. F. Pierce, Baltimore.—p. 477.
- The Eye in Epilepsy. L. L. Mayer, Chicago.—p. 486.
- Boeck's Sarcoid of Eyelid with Coexisting Darier-Roussy's Sarcoid: Report of Case, with Review of Literature. H. C. Ernsting, Springfield, Ohio.—p. 493.
- Fish Lens Protein and Cataract: I. Therapeutic Value. R. F. Shropshire, St. Marys, Pa.—p. 505.
- Id.: II. Chemical Studies. R. F. Shropshire, St. Marys, Pa.—p. 508.
- Cataract Due to Dinitrophenol: Report of Cases. E. E. Hessing, San Francisco.—p. 513.
- Retinal Allergy: Report of Case. J. S. Plumer, Pittsburgh.—p. 516.
- Use of Suture in Extraction of Cataract. E. C. Ellett, Memphis, Tenn.—p. 523.

Archives of Otolaryngology, Chicago

25: 119-234 (Feb.) 1937

- Use of Sulfur Dioxide in Treatment of Epidemic Cold. A. G. Rawlins, San Francisco.—p. 119.
- Statistical Study of Allergic (Vasomotor) Rhinitis. J. A. Clarke Jr. and H. L. Rogers, Philadelphia.—p. 124.
- Pathologic Change in Olfactory Nasal Mucosa of Albino Rats with "Stunted" Olfactory Bulbs. C. G. Smith, Toronto.—p. 131.
- Complete Apicectomy (Mastoidotomy-Apicectomy): New Technique for Complete Exenteration of Apical Carotid Portion of Petrous Pyramid. J. Lempert, New York.—p. 144.
- Treatment of Tinnitus Aurium by Intravenous Use of Local Anesthetic Agents. R. B. Lewy, Chicago.—p. 178.
- Thrombosis of Sigmoid Sinus: Clinical Analysis. J. H. Maxwell, Ann Arbor, Mich.—p. 184.
- Experimental Evidence for Basic Theory of Vibrotactile Interpretation of Speech. R. H. Gault and L. D. Goodfellow, Evanston, Ill.—p. 191.
- Spreading Osteomyelitis of Frontal Bone Secondary to Disease of Frontal Sinus, with Preliminary Report as to Bacteriology and Specific Treatment. H. L. Williams and F. R. Heilman, Rochester, Minn.—p. 191.

New England Journal of Medicine, Boston

216: 273-326 (Feb. 18) 1937

Primary Cranial and Intracranial Epidermoids and Dermoids. D. Munro and W. Wegner, Boston.—p. 273.

The Management of Chronic Alcoholism in England, Scandinavia and Central Europe. R. Fleming, Boston.—p. 279.

*Gum Acacia in Treatment of Nephritic Edema: Report of Case. J. A. Boone, Boston.—p. 289.

Closed Reduction of Fractures of Os Calcis. C. W. Goff, Hartford, Conn.—p. 293.

Acute Intestinal Obstruction Following Hernia into Ascending Mesocolon: Case Report. J. W. Chamberlain, Boston.—p. 299.

216: 327-370 (Feb. 25) 1937

Present Methods of Treating Varicose Veins. H. H. Faxon, Boston.—p. 327.

Pancreatic Cyst: Report of Case. E. L. Young Jr., Boston.—p. 334.

Coarctation of Aorta: Report of Two Unusual Cases. W. H. Goodson Jr., Liberty, Mo.—p. 339.

Suction Tube for Ileostomy. R. Lium, Jamaica Plain, Mass.—p. 345.

Acacia in Treatment of Nephritic Edema.—From his review of the limited literature on the subject and from his experience with a case, it seems to Boone that acacia may eventually prove to be of definite value in the treatment of hypoproteinemic edema that fails to respond to the usual measures. Its effect in greatly increasing the blood volume would seem to contraindicate its use in patients with any evidence of cardiovascular disease. This contraindication would probably apply to the hypoproteinemic edema of beriberi because of the myocardial weakness that is so frequently a feature of that disease. If a history of allergy is obtained, the drug should be given most cautiously, and careful skin tests should be done before each injection, whether the patient is allergic or not. The solution should be carefully prepared and freshly made up, unless it is prepared with sodium chloride, and should be given slowly. The preparation of the solution is a difficult and tedious procedure, and some authors have used a 30 per cent solution in 100 cc. ampules marketed by a large pharmaceutical house. Some investigators have felt that the acacia appears to exert a curative effect on the renal lesion, but the author was unable to observe that acacia had any beneficial effect other than the removal of edema and its attendant symptoms.

New York State Journal of Medicine, New York

37: 349-460 (Feb. 15) 1937

Clinical Evaluation of Protamine Insulin. H. G. Jacobi, New York.—p. 349.

What Treatment of Syphilis Accomplishes. P. A. O'Leary, Rochester, Minn.—p. 365.

Empyema of Pericardium: Pyopericardium. D. H. Hallock, Southampton.—p. 372.

Muscle Injuries. C. W. Henson, New York.—p. 378.

Fever Therapy in Psychiatric Practice. P. R. Vessie, Briarcliff Manor.—p. 385.

Review of Radiographs of Infectious Arthritis: Twenty-Four Cases: One to Four Years Following Fever Therapy. S. C. Davidson and S. L. Warren, Rochester.—p. 387.

*Adenomas: Relation to Rectocolonic Carcinoma. F. C. Yeomans, New York.—p. 390.

Traumatic Subcutaneous Emphysema of Thoracic Origin. J. B. Stenbuck, New York.—p. 395.

Anal Abscess and Anal Fistula: Etiology and Treatment. J. C. M. Brust, Syracuse.—p. 400.

Extensive Plexiform Neuroma of Neck. H. W. Meyer, New York.—p. 403.

Endocrine Disturbances Simulating Surgical Conditions of Abdomen. C. W. Lester, New York.—p. 406.

Adenomas and Rectocolonic Carcinomas.—Yeomans believes that sigmoidoscopy should be done in every patient having symptoms referable to the colon or rectum, such as hemorrhoids, rectal bleeding, pain or discomfort, sciatica, persistent diarrhea, progressive constipation or a feeling of incomplete relief after evacuation. Any growth, however small and innocent in appearance, should be destroyed by fulguration or, if excised, submitted to a competent tumor pathologist. In his thirty-five cases of solitary adenomas, thirteen proved to be malignant. Prompt removal of an adenoma is the only guaranty against its later change into adenocarcinoma. A follow-up examination at intervals of six months for three years should be made. Multiple polyposis and adenomatosis coli are grave conditions requiring major surgery for relief. Convincing proof is presented of malignant degeneration, frequently multicentric, in both groups of disseminated growths. Adenomas develop particularly in the cancer age and their number more closely approaches the number of cancers in the sigmoid and rectum than elsewhere in the gastro-intestinal tract. Doubtless car-

cino-ma of the colon and rectum is frequently mediated through an adenoma, but it cannot be affirmed as yet that all recto-colonic cancers originate from adenomas.

Pennsylvania Medical Journal, Harrisburg

40: 325-408 (Feb.) 1937

Diabetes. E. P. Joslin, Boston.—p. 325.

*Diabetic Arteriosclerosis. T. A. Henderson, Abington.—p. 329.

Fluctuations in Blood Sugar in Diabetics. C. W. W. Elkin, Pittsburgh.—p. 334.

Diabetes Mortality Approaches That of Tuberculosis. J. D. Paul, Philadelphia.—p. 337.

Coincident Diabetes and Tuberculosis. Ruth W. Wilson, Beaver.—p. 342.

Insulin Atrophy. J. A. Shelly, Ambler.—p. 347.

Experimental Studies on Effects of Insulin, Protamine Insulin and Crystalline Insulin. J. H. Barach, Pittsburgh.—p. 349.

Position of County Medical Society in Social Aspects of Medical Service. F. F. Borzell, Philadelphia.—p. 352.

Diabetic Arteriosclerosis.—By injecting metallic mercury into the popliteal artery and taking roentgenograms of the entire leg below the knee, Henderson has studied the gross pathologic changes in the arterial channels of seven diabetic legs which have come to amputation. The mercury was introduced at approximately systolic blood pressure, so that a rough approximation of physiologic conditions was produced. As metallic mercury will not pass through capillaries, a clear picture of the available arterial channels in a given leg can be obtained. After a study of the roentgenograms the leg was dissected at strategic points and the arteries were studied directly. The order of involvement of the arteries seemed to be posterior tibial, peroneal and anterior tibial. The extent of the arterial changes corresponds much more to the duration of the diabetes than it does to the age of the patient. It seems possible that diabetic arteriosclerosis starts as a patchy affair. It may sometimes occlude a major vessel so rapidly that adequate collateral circulation cannot develop to prevent gangrene. It may sometimes progress slowly, accompanied by the development of good collateral circulation, and eventually involve most of the major vessels in a diffuse process. At this stage it either resembles or is identical with nondiabetic or senile arteriosclerosis. In the slowly developing cases the collateral vessels, though never able to deliver a normally rich supply of arterial blood to the part, seem often to be sufficient to keep the patient symptom free or to diminish only slightly his activity and comfort if infection is avoided. Infection seems to be the precipitating factor.

Public Health Reports, Washington, D. C.

52: 157-188 (Feb. 5) 1937

Salient Public Health Features of Rheumatic Heart Disease. O. F. Hedley.—p. 164.

Control of Chronic Acid Mists from Plating Tanks. E. C. Riley and F. H. Goldman.—p. 172.

Radiology, Syracuse, N. Y.

28: 131-260 (Feb.) 1937

Cancer of Thyroid in Children. H. F. Hare, Boston.—p. 131.

X-Ray Diffraction Studies of Globular Proteins: II. Hemoglobins. G. L. Clark and J. H. Shenk, Urbana, Ill.—p. 144.

*Circular Lesion of Pulmonary Tuberculosis. C. C. Birkelo and J. A. Kasper, Detroit.—p. 157.

Effect of Roentgen Rays on Growth of Mouse Sarcoma 180 Irradiated in Vivo. K. Sugiura, New York.—p. 162.

*Roentgen-Ray Evidence of Metastatic Malignancy in Bone. H. Snure and G. D. Maner, Los Angeles.—p. 172.

Intravenous and Intraduodenal Administration of Radio-Sodium. J. G. Hamilton and R. S. Stone, San Francisco.—p. 178.

New and Apparently Useful Biologic Indicator of X-Ray Dosage: Note. C. P. Haskins, Schenectady, N. Y., and E. V. Enzmann, Cambridge, Mass.—p. 189.

Roentgen Kymographic Studies of Cardiac Conditions. W. G. Scott, S. Moore and H. A. McCordock, St. Louis.—p. 196.

*Use of Pentobarbital Sodium for Roentgen Nausea and Vomiting. W. C. Popp and M. W. Binger, Rochester, Minn.—p. 211.

Heat as a Sensitizing Agent in Radiation Therapy of Neoplastic Diseases. W. H. Meyer and A. Mutscheller, New York.—p. 215.

End Results of Injuries to Epiphyses. O. Lipschultz, Minneapolis.—p. 223.

Circular Lesion of Pulmonary Tuberculosis.—Birkelo and Kasper base their dissertation on sixty cases of pulmonary tuberculosis selected on the basis of their circular outline. Most of these cases have been observed for more than a year, some for periods of from five to six years. While some of the circular lesions were observed to develop from originally diffuse tuberculous infiltration, others were circular at the time of the

first observation. A small group includes those which appear to represent the final stage of a primary or childhood type of infiltration. Contrary to the belief of previous observers, it is felt that some circular lesions develop from first infection. According to the authors' observations, the circular lesions may be divided into three groups. The first group includes the lesions that have been found to develop from diffuse infiltration. Such lesions are not entirely stationary and may undergo excavation. Most of them, however, show a tendency to become smaller. The second group includes the lesions that are definitely circular when first discovered. They may be single or multiple but in most instances are solitary lesions varying in size from 0.5 to 3 cm. in diameter. Most of them are of uniform density and well defined in outline; they are definitely in the parenchyma. Occasionally they excavate and may cause a spread of the tuberculous disease. These lesions remain stationary for months and years and probably represent the well encapsulated type, which is least likely to become active. The third group includes the receding stage of the childhood type of infiltration. At first the lesions of this group were found to be definitely circular; later they retrogressed without any collapse therapy. It would appear that the lesions of the second group require only periodic check up. In the event that excavation should begin, the indication would be for some therapeutic intervention. Three cases showed evidence of excavation, while thirty-six remained inactive. The lesions in the first group represent incomplete healing with the possibility of incomplete encapsulation. Since the majority of sixteen cases showed retrogression, it would be justifiable to conclude that their outlook for satisfactory recovery would be good and that one might expect eventual disappearance of the lesion or complete encapsulation. No additional suggestions can be advanced for the lesions in the third group except to emphasize that continued observation of the lesions is a necessity.

Roentgen Evidence of Metastatic Malignancy in Bone.

—Several years ago, following a necropsy on an extremely emaciated individual, Snure and Maner reviewed the roentgenograms of his lumbar spine, which had indicated changes in the fifth lumbar body alone. Necropsy showed macroscopic evidence of metastatic malignant changes throughout most of the vertebral bodies. Microscopic examination proved that tumor cells had replaced most of the marrow cells without destroying the trabeculae of the spongiosa; however, there were several areas, about 1 cm. in diameter, where the trabeculae were destroyed that could not be demonstrated on the roentgenogram. Following this observation they removed a V-shaped section of bone from the vertebral bodies of all patients dying of a malignant condition when necropsy was permitted. To avoid distortion due to the spine-film distance or to the superimposed shadows, they saved the spinal column lengthwise in the sagittal plane and placed one half directly on the film holder; even under these conditions the larger areas of destruction were not demonstrable on the roentgenogram. It is surprising how frequently metastatic malignant change is present in the vertebrae without clinical signs and without evidence on roentgenograms that have excellent detail and quality. By merely taking a wedge of bone about 0.5 cm. in thickness from the lumbar vertebrae they found several cases of malignant metastatic growths originating from primary carcinoma of the liver, tongue, stomach, gallbladder, urinary bladder, pancreas, rectum and other organs supposed to metastasize but rarely to the osseous structures. The largest number of metastases to the vertebrae was secondary to breast and prostatic carcinoma. The best method of study would be that suggested by Fraenkel of sectioning and roentgenographing all bones of the body.

Pentobarbital Sodium for Roentgen Nausea and Vomiting.—Their careful study of 175 patients who had received pentobarbital sodium, in all of whom nausea and vomiting was expected to occur after treatment, revealed that 61.1 per cent received complete relief from roentgen sickness, 18.3 per cent had only moderate nausea, 10.9 per cent had nausea with a very slight amount of vomiting, and 9.7 per cent obtained no relief. Popp and Binger found that the administration of 3 grains (0.2 Gm.) of pentobarbital sodium as a suppository immediately following a session of treatment was most successful. Since pentobarbital sodium is easily available, inexpensive, easily

administered, and in their experience without harmful effects, they feel that its use in controlling roentgen nausea and vomiting is definitely indicated.

Southern Medical Journal, Birmingham, Ala.

30: 243-354 (March) 1937. Partial Index

- Roentgen Treatment of Infections. W. F. Manges, Philadelphia.—p. 243.
 *Bone Changes in Sickle Cell Anemia. L. W. Diggs, H. N. Pulliam and J. C. King, Memphis, Tenn.—p. 249.
 Diverticulum of Urinary Bladder. N. S. Moore, St. Louis.—p. 263.
 Lupus Vulgaris in the Far South. E. D. French and R. Lefholz, Miami, Fla.—p. 270.
 Mass Control of Syphilis. R. A. Vonderlehr and L. J. Usilton, Washington, D. C.—p. 281.
 Morbid Anatomic Changes Following Artificial Fever: Report of Autopsies. E. L. Wilbur and J. B. Stevens, Durham, N. C.—p. 286.
 Study of Vaginal Flora in Normal Female. B. Carter and C. P. Jones, Durham, N. C.—p. 298.
 Prevention of Deaths from Measles. H. Williams, Baltimore.—p. 304.
 Carcinoma of Gallbladder: Studies of Twenty-Four Cases in Georgia. R. L. Rhodes and R. B. Greenblatt, Augusta, Ga.—p. 315.
 Acute Infections of Middle Ear and Mastoid Cells. J. J. Shea, Memphis, Tenn.—p. 322.
 Diseases of Nervous System Caused by Nutritional Deficiency. E. Wexberg, New Orleans.—p. 334.
 Dietary Deficiencies as Cause of Anemia. P. W. Clough, Baltimore.—p. 342.

Bone Changes in Sickle Cell Anemia.—Diggs and his associates attempt to summarize the known facts concerning the pathology and roentgen appearance of bones in sickle cell anemia based on the recorded observations of other investigators and observations made at the John Gaston Hospital. Thirty-nine Negroes with active and severe sickle cell anemia have been studied clinically. Eight necropsies have been performed. In each necropsy the bone marrow was examined, in five the skull was examined and in three one or more long bones were sectioned. The pathologic material has been supplemented by microscopic sections of bones. The bones of thirty Negroes with sickle cell anemia have been studied roentgenologically, the total number of roentgenograms being 259. For controls the files of the fracture clinic were used. The gross microscopic and roentgen appearance of the bones in sickle cell anemia indicates that the bone marrow is primarily involved. Two factors appear to be working in opposite directions: the hyperplastic marrow tends to increase its volume at the expense of bone and the sclerosing factors tend to replace the marrow and to substitute in its place osteoid tissue or new bone. The excessive and abnormal growth activity of the marrow has, as a rule, no significant effect on the bony cage within which it is confined, and such effects as it does have are maximal in the bones that are normally engaged in blood cell formation, such as the skull and cancellous bones of the trunk. In these bones osteoporosis is dominant. In the long bones in which normal hematopoiesis does not occur, sclerosis is dominant. In the most distal bones of the hands and feet in which marrow is absent the changes are minimal. The combination of marrow expanding and marrow replacing processes leads, if the patient lives long enough, to gross anatomic derangements in the bone structure.

Texas State Journal of Medicine, Fort Worth

32: 639-720 (Feb.) 1937

- Rational Treatment of Peptic Ulcer According to Physiologic Principles. A. Ochsner, New Orleans.—p. 645.
 Surgery of Recurrent Exophthalmic Goiter. A. C. Scott Jr., Temple.—p. 649.
 Apical Cavity in Tuberculosis: Its Management. J. W. Nixon, San Antonio.—p. 653.
 Appendicular Colic in Childhood. K. H. Aynesworth, Waco.—p. 655.
 Acute Appendicitis. J. G. Burns, Cuero.—p. 662.
 Cataract Extraction: Recent Modalities—Improved Technique—Better Results. O. B. Nugent, Chicago.—p. 664.
 Otitic Meningitis. W. D. Jones, Dallas.—p. 672.
 Procaine Crystals Topically Applied as Local Anesthetic in Naval Surgery. V. D. Rathgeber, Fort Worth.—p. 677.
 Some Obstetric Complications Due to Anomalies of Lower Uterine Segment. H. W. Johnson, Houston.—p. 678.
 Recent Advances in Treatment of Diabetes Mellitus. E. H. Rynearson, Rochester, Minn.—p. 680.
 Fungus Infections and Their Allergic Manifestations. W. F. Spiller and H. E. Prince, Galveston.—p. 684.
 Aberrations of Pancreas. G. Turner, El Paso.—p. 689.
 Experimental Fat Necrosis. M. P. Neal, Columbia, Mo.—p. 691.
 Spontaneous Pneumothorax. P. M. Bassel, Temple.—p. 696.
 Mental Hygiene as a Public Health Measure. T. H. Harris, Galveston.—p. 700.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

21: 65-112 (Feb.) 1937

- Familial Hyaline Dystrophy in Fundus Oculi or Doyné's Family Honeycomb "Choroiditis." M. Tree.—p. 65.
Bilateral Ganglionic Neurogliomas of Face: Case. J. G. Clegg and F. C. Moore.—p. 92.
"Infantile and Congenital Retinal Fold." A. Tillema.—p. 94.

British Journal of Surgery, Bristol

24: 421-636 (Jan.) 1937

- Rotation at Shoulder: Critical Inquiry. L. McGregor.—p. 425.
Mallet Finger. I. S. Smillie.—p. 439.
Blood Pressure During Spinal Anesthesia. E. F. Hill.—p. 446.
Pathologic Fracture of Humerus Complicating Late Secondary Syphilis. H. J. Burrows.—p. 452.
Comparison of Results of Spinal Fixation Operations and Nonoperative Treatment in Pott's Disease in Adults. G. K. McKee.—p. 456.
Gastroscopy: Its History, Technic and Clinical Value, with Report on Sixty Cases. H. Taylor.—p. 469.
Funnel-Neck Deformity of Bladder. J. B. Macalpine and D. S. P. Wilson.—p. 501.
*Association of Inguinal Hernia with Traumatic Perforation of Intestine. I. Aird.—p. 529.
Chronic Peptic Ulcer of Esophagus: Report of Eight Cases. A. Lyall.—p. 534.
Renal Rickets. N. L. Price and T. B. Davie.—p. 548.
Cholesterosis of Gallbladder: Review, Supplemented by Personal Observations on Eighty-Seven Cases. W. A. Mackey.—p. 570.
*Toxin Formation in Burned Tissues. W. C. Wilson, J. S. Jeffrey, A. N. Roxburgh and C. P. Stewart.—p. 601.

Inguinal Hernia and Traumatic Perforation of Intestine.—Aird discusses the relation that inguinal hernia bears to traumatic perforation of the intestine, as the result of direct injury to the hernia or abdominal wall or indirectly as the result of excessive muscular effort. When the causative violence has been applied directly to the hernia, the intestine is ruptured as it lies unprotected in the hernial sac. In injury by a force applied to a point on the abdominal wall remote from the hernia it can be presumed that a fixed loop of intestine is more liable to injury than is a freely movable loop that can be dislodged in safety by a force applied to the abdomen. Ruptures of the intestine resulting from violent hyperextension of the trunk, without direct injury to the abdomen, are still less easily explained. To account for these cases, Bunge points out that any sudden rise of intra-abdominal pressure is invariably associated with a coincident rise in intra-intestinal pressure. In the normal abdomen such a rise is of little consequence, since the pressure within the intestine is equal to the pressure around it. If at the time of sudden elevation of intra-abdominal pressure a loop of intestine overlies the mouth of a hernial sac, and a rise of pressure consequently occurs in that intestinal loop, the loop lacks the support of the intra-abdominal pressure at a localized point on its surface, protrudes downward into the sac in which no rise of pressure has occurred, and bursts at that unsupported point. When the intra-abdominal pressure falls again, the ruptured loop moves away from the abdominal ring and discharges its content through the perforation to give a general peritonitis. Ingenious as the theory is, its complexity is a bar to its unqualified acceptance. It would be simpler to explain these cases by overstretching of a loop of intestine, fixed at one end at the ileocecal or duodenojejunal junction and gripped at the other by a contraction of the abdominal muscles around the hernial orifice. A loop of intestine lying within a hernial sac may be injured by violence applied directly to the hernial swelling—the pressure of an ill adjusted truss, or too vigorous attempts to relieve an incarceration. Ruptures of the intestine caused by violence to the abdomen appear to be due to the application of the traumatic force to a doubly fixed and immovable intestinal loop. Ruptures by muscular violence are most simply explained by the overstretching of an intestinal loop between the ileocecal (or duodenojejunal) junction and the abdominal inguinal ring, and distraction of these points of fixation from each other by violent hyperextension of the trunk.

Toxin Formation in Burned Tissues.—In their experiments on rabbits, Wilson and his colleagues demonstrated that edema fluid extracted from a burned area is toxic to healthy animals of the same species. By injecting edema fluid itself,

they avoided fallacies connected with methods of chemical extraction. The development of toxicity was slow, probably steady and progressive, up to forty-eight hours at least. Fluid at four hours after injury was not toxic. Clearly the toxic principles were not formed immediately by the action of heat. It was seen that toxic substances could be formed in edema fluid by enzyme action after organisms had been removed by filtering. Therefore it seemed justifiable to conclude that autolysis of injured tissue was the mechanism of toxin elaboration. The actions of edema fluid indicated that more than one toxic substance was present. Some samples had a rapidly lethal, apparently neurotoxic, action which was entirely absent from others. Samples which caused death within a few hours did so by virtue of some component which had many points of community with histamine and other capillary poisons. When edema fluid caused death after a considerable number of hours, there was sometimes little to indicate its mode of action; the chief, though not invariable, effect was to produce degenerative changes in the liver cells. The toxic bodies were associated mainly with the globulin fraction, though the albumin fraction was only slightly less implicated, and thus were brought into the category of protein derivatives. The burned animals were in most instances very little affected by the injury during the period of survival allowed; i. e., forty-eight hours. Since the burned area was of limited extent and the development of toxicity was gradual, the quantity of toxin absorbed during the period of survival would be small. The capacity of animals to survive repeated small doses of toxin was proved in experiments on attempted immunization. A comparison of the toxic effects in animals of injected edema fluid with the clinical condition of acute toxemia is of special interest. In many respects there is a marked similarity; the resemblance is perhaps strongest in the postmortem changes, because the striking and constant feature of fatal toxemia is necrosis and fatty degeneration of the liver cells in the centers of the lobules. Even without these points of similarity, the demonstration of toxin formation in burned areas is in itself suggestive that the action of circulating toxins may play an important part in the systemic disturbances of burns. Taken in conjunction with evidence that in human cases increased concentration of the blood, early bacterial infection and changes in blood chemistry are not essential causes of toxemia, the results of the investigation seem of particular significance.

British Medical Journal, London

1: 153-202 (Jan. 23) 1937

- Cancer of the Breast. C. Rowntree.—p. 153.
*Variations of Weight During Pregnancy. M. D. A. Evans.—p. 157.
Lupus Vulgaris, with Especial Reference to Its Treatment with Finsen-Lomholt Lamp. R. Aitken.—p. 160.
Blood Group Tests in Disputed Paternity. D. Harley and G. R. Lynch.—p. 163.
Some Clinical Aspects of Lymphatic System. H. A. Harris.—p. 166.

Variations of Weight During Pregnancy.—Evans declares that it is universally agreed that there is very little variation in weight during the first trimester, some patients losing a little and others gaining, depending probably on the ease with which the body adjusts itself to the presence of the ovum. The increase that occurs must therefore take place during the last six months. The average monthly gain during the second and third trimesters should be between 2 and 4 pounds (0.9-1.8 Kg.) and the total gain between 16 and 18 pounds (7.3-8.2 Kg.). If the gain is greater, the patient should be questioned carefully and be examined in order to find, if possible, the cause of the discrepancy. In the 211 cases under consideration the average increase in weight of a potential toxemic patient was definitely more than that of a normal patient, but it was not sufficient to be of real clinical value, since the 4.3 pounds (2 Kg.) that was found to be the average monthly gain of the toxemic patients was as a rule gained by the normal women during one of their later months. If, however, the patient has a monthly gain of from 4 to 5 pounds (1.8-2.3 Kg.) in two or more consecutive months, it should be regarded as abnormal; dietetic errors, if present, should be rectified and a stricter supervision undertaken. On the other hand, a sudden marked rise in weight during one month is of great help in foretelling a toxemia. If the patient showed a monthly gain of 8 pounds (3.6 Kg.) or

more, there was a 63 per cent chance of her developing a toxemia and, following a 6 to 8 pound (2.7-3.6 Kg.) gain, a 50 per cent chance. It would appear, therefore, that it is the sudden abnormal increase in weight rather than the gradual gain which is of importance in detecting an incipient toxemia. This abnormal gain is as a rule an earlier sign than a raised blood pressure, but occasionally the latter is the first indication. Therefore ideal antepartum supervision should include the taking of the weight and blood pressure each month during the second trimester, with more frequent observations during the last trimester, permitting a diagnosis of toxemia of pregnancy before albuminuria appears. Treatment could then be given and the percentage of the maternal mortality due to the toxemias of pregnancy should be materially reduced. In this way a certain number of the toxemic cases may be avoided; if not avoided, with appropriate and early treatment most of the cases would be less severe.

Journal of Physiology, London

88: 369-512 (Jan. 18) 1937

- Water Metabolism in Relation to Menstrual Cycle. P. L. Krohn and S. Zuckerman.—p. 369.
 "Sensitization" by Injury of Cutaneous Nerve Endings in Frog. F. Echlin and N. Propper.—p. 388.
 Relation of Pituitary to Liver Glycogen Production and Utilization. O. Cope.—p. 401.
 Adrenalin and Blood Lactic Acid Level in Hypophysectomized Rabbits. O. Cope and R. H. Thompson.—p. 417.
 Study of Carotid Sinus Respiratory Reflexes by Means of Chronic Experiments. D. H. Smyth.—p. 425.
 Electric Responses of Dark-Adapted Frogs' Eyes to Monochromatic Stimuli. R. Granit and A. Munsterhjelm.—p. 436.
 Effects on Knee Jerk of Stimulation of Central End of Vagus and of Various Changes in Circulation and Respiration. A. Schweitzer and S. Wright.—p. 459.
 Action of Adrenalin on Knee Jerk. A. Schweitzer and S. Wright.—p. 476.
 Changes in Viscosity of an Unstriated Muscle (*Mytilus Edulis*) During and After Stimulation with Alternating, Interrupted and Uninterrupted Direct Currents. F. R. Winton.—p. 492.

Lancet, London

1: 185-246 (Jan. 23) 1937

- Surgical Treatment of Cardiac Ischemia. L. O'Shaughnessy, introduction by Dawson.—p. 185.
 *Is *p*-Aminobenzenesulfonamide the Active Agent in Prontosil Therapy? A. T. Fuller.—p. 194.
 Mixed Meningococcal and Streptococcal Meningitis. A. A. Cunningham.—p. 198.
 *Overbreathing Tetany: Changes in Calcium of Serum, Serum-Ultratritates and Cerebrospinal Fluid. R. A. McCance and E. Watchorn.—p. 200.
 *Cerebrospinal Fluid in Spontaneous Overbreathing Tetany. J. N. Cumings and E. A. Carmichael.—p. 201.
 Retroperitoneal Sarcoma of Unusual Distribution. H. Waters, D. Levine and B. Myers, with note on histology by F. A. Knott.—p. 202.
 Investigation of Relatives of Patients with Gastric Cancer. A. E. Levin and B. A. Kuchur.—p. 204.
 Dangerous Rectal Trauma Due to Rigid Nozzle. D. D. Pinnock.—p. 205.
 Cardiovascular Changes Following Arteriovenous Aneurysm. G. B. Price.—p. 206.

The Active Agent in Prontosil Therapy.—Fuller states that in normal animals 35 per cent of the injected sulfanilamide and 49 per cent of the soluble prontosil are not accounted for. A part of these drugs is undoubtedly destroyed in the body. In the case of insoluble prontosil 90 per cent was not recovered, but a large part of this was left behind in the body, staining the tissues an orange color, and excretion was still taking place at the conclusion of the experiment. The discrepancies were greater in infected animals. This may be due to retention by the inflamed tissues or to impairment of kidney function. The infected groups receiving prontosil excreted more sulfanilamide than did the normal groups. In the soluble prontosil experiment equivalent amounts of prontosil and sulfanilamide were excreted, and evidence suggests that half the injected prontosil was reduced. When oral prontosil was also given to patients, a still larger proportion was converted to sulfanilamide. Allowing for the threefold difference in molecular weights, if sulfanilamide is the active agent in prontosil therapy it should be six times as efficient weight for weight as soluble prontosil. This ratio will be affected if there is any great difference in the rates of elimination of sulfanilamide from sulfanilamide-treated and prontosil-treated animals. In the three groups of ten infected mice receiving an average of 25 mg. of soluble

prontosil each, seven, seven and five had died by the fifth day. Six of the ten mice receiving 22.5 mg. of sulfanilamide had died by the fifth day. The experiments thus fail to show any great difference between the two drugs, but for adequate protection of the animals many more than the three injections received would have been necessary. The four control mice had died by the second day. If prontosil has more protective power than is accounted for by the sulfanilamide produced from it, this further action must be other than a simple bactericidal one, for prontosil itself has little or no streptococcus-killing power. It is possible that the therapeutic action of prontosil is due to the sulfanilamide derived from it by reduction in the body.

Overbreathing Tetany.—McCance and Watchorn repeated the work of Barnes and Greaves on overbreathing tetany. They selected two subjects: one who suffered from severe attacks of hysterical overbreathing tetany and a normal woman. Tetany began to develop after a period of only two and one-half to three minutes of overbreathing in the normal subject and after three and one-half minutes in the other patient. The serum calcium rose during overbreathing and fell again immediately afterward. This rise is in agreement with the results reported by a number of authors. The ultrafiltrable calcium also rose during overbreathing. The ratio of the ultrafiltrable to the total calcium remained virtually unchanged in the normal subject. The ratio fell slightly in the patient throughout the whole experiment but was always within normal limits. The cerebrospinal fluid calcium did not fall during overbreathing and did not in fact show any significant change. The inorganic phosphorus of the cerebrospinal fluid also showed no significant change during overbreathing. The results do not confirm those of Barnes and Greaves. The results indicate that the ease with which tetany can be induced by overbreathing has little diagnostic significance. The time at which tetany develops and its severity depend on the susceptibility of the subject to the alkalosis so produced. Thus, tetany may not develop clinically until overbreathing has been in progress for some time, but cases have been recorded in women after very slight hyperventilation. Perfectly normal persons may be as susceptible to alkalosis and tetany as those unfortunate people who are liable to attacks of uncontrollable overbreathing and its sequels.

Cerebrospinal Fluid in Spontaneous Overbreathing Tetany.—In their two cases of overbreathing tetany in which the cerebrospinal fluid and blood calcium contents were estimated, Cumings and Carmichael found that there was no appreciable decrease in the cerebrospinal fluid calcium, although a small decrease took place in the serum calcium.

Medical Journal of Australia, Sydney

1: 75-116 (Jan. 16) 1937

- Some Phases of Medical Practice in the Twentieth Century. W. Summons.—p. 75.
 Scope and Activities of the Commonwealth X-Ray and Radium Laboratory, University of Melbourne. M. J. Holmes and C. E. Eddy.—p. 82.
 Some Remarks on Antenatal Supervision. T. G. Wilson.—p. 86.
 Some Remarks on Relief of Pain in Childbirth. B. H. Swift.—p. 83.
 Treatment of Early Carcinoma of Lip, with Especial Reference to Use of Low Kilo-voltage X-Rays. J. C. Belisario.—p. 91.

Journal of Oriental Med., Dairen, S. Manchuria

26: 1-18 (Jan.) 1937

- Method of Ascertaining Resistance of Tubercle and Acid-Fast Bacilli by "Test-Tube Bottom Method." T. Hashimoto.—p. 1.
 Acute Pancreatitis. K. Mori.—p. 2.
 Pityriasis Circinata, Toyama: Case (Pityriasis Rotunda, Matsuura). K. Mori.—p. 4.
 Hygienic Problems of Water in Manchuria: III. Standard of Purity to Be Applied to Well Water in Manchuria. T. Kodama, S. Suzuki and M. Takeyoshi.—p. 5.
 Angle of Inclination of Upper Middle Incisors of Chinese. S. Ohshima.—p. 8.
 Investigations of Biologic Character of *Leishmania Donovanii*: III. Report: Investigations on Necessity for Growth of *Leishmania Donovanii* in Vitro. Y. Saito.—p. 9.
 Body Build of Chinese Mountain Workers. S. Takeya.—p. 11.
 Postvaccinal Exanthema. T. Akiyama.—p. 13.
 Experimentation with Ide's Reaction and a Personal Modification. S. Fukuda.—p. 14.
 Lymphogranulomatosis Inguinale (Maladie de Nicolas-Favre): Report III. Immune Biologic Studies of Frei's Reaction in Guinea-Pigs and Rabbits. K. Tasaki.—p. 15.
 Id.: Report IV. Intravenous Injections of Frei Antigen for Therapeutic and Diagnostic Purposes. K. Tasaki.—p. 17.

Gynécologie et Obstétrique, Paris

35: 81-160 (Feb.) 1937

Primary Epithelioma of the Clitoris: Case. A. Laffont, J. Montpellier and P. Jacquemin.—p. 81.

Roentgenologic Study of Urinary Stasis in Pregnancy: Ascending Ureteropyelography. N.-J. Contiadès.—p. 95.

*Procedure of Professor Enrigue A. Boero and Action of Formaldehyde on Pregnancy. C. A. Masson.—p. 115.

Action of Formaldehyde on Pregnancy.—In 1935 Boero advocated the use of formaldehyde for the interruption of pregnancy. He claimed that this substance causes the death of the fetus but also its retention for some time, making it possible for the patient to continue the treatment of the disease for which the pregnancy was interrupted. Masson made experiments on animals before he attempted to try formaldehyde injections in pregnant women. He chose rabbits and guinea-pigs because these animals have a uterus bicornis, which often allowed him to experiment on either half of the pregnant uterus. Some animals were in their first gestation, some had had many pregnancies and some rabbits were even older than 3 years. To make an intra-amniotic injection of formaldehyde he had to take recourse to a median laparotomy under ether. Then 1 cc. of a 1 per cent solution of formaldehyde was injected into the amniotic sac. In cases of simple pregnancies the fetal movements ceased immediately, often only after a few convulsive movements. In cases of double pregnancy he could observe the phenomenon of continued fetal movements together with uterine contractions. When the quantity of formaldehyde was increased, both fetuses came out dead. Too much formaldehyde caused hemorrhagic lesions in the uterine wall. It was even possible to complete the gestation of the uninjected fetus while the injected fetus remained dead in its amnion. The author's experiences were approximately the same with guinea-pigs as with rabbits and the results obtained led him to attempt the experiment in pregnant women. After emptying the bladder, he inserted a fine needle about two inches above the pubic bone directly into the amniotic cavity. The amniotic fluid flowed drop by drop into the syringe and could be used later for examination. He injected 1.25 cc. of solution of formaldehyde. The patient experienced some pain in the lower part of the abdomen, but this soon subsided. The pain recurred the next day and again after forty-eight hours with some intensity. In the first case the nurse prematurely opened the amniotic sac and about fifteen minutes later the dead fetus was expelled, followed by the placenta. In all the treated cases, pain and swelling of the breasts developed three days later. The quantity of formaldehyde injected may be larger or smaller than 1.25 cc. of the 40 per cent solution, depending on the gravity of the patient's condition. In one case 0.5 cc. of solution of formaldehyde did not kill the fetus but arrested temporarily the patient's toxemia, and expulsion of a live fetus took place sixty-three days later. In another similar case a second injection of 2 cc. of solution of formaldehyde was necessary nine days later, preceded by extraction of 100 cc. of amniotic fluid. Six days later the dead fetus was expelled by normal uterine contractions.

Schweizerische medizinische Wochenschrift, Basel

67: 153-176 (Feb. 20) 1937. Partial Index

Crystalline Structure of Bone in Its Relation to Physiology and Pathology of Skeleton. C. Henschen.—p. 153.

Anthrax in Human Subjects and Animals in Switzerland. L. Riedmüller.—p. 158.

*Unexpected Late Serologic Relapses After Prolonged and Intensive Specific Syphilis Therapy. H. Loosli.—p. 159.

Progress in Therapy with Lactic Ferments. F. Wyss-Chodat.—p. 161.

Therapy of Angina Pectoris and Question of Digitalis. Leins-Forrer.—p. 163.

Shope's Cottontail Rabbit Papilloma. P. Ladewig.—p. 165.

Relapses After Intensive Syphilis Therapy.—Loosli is of the opinion that, since the introduction of arsphenamine, many have become unduly optimistic concerning the treatment of the early stages of syphilis. Repeated reminders not to regard the general rules as applicable to every case are usually disregarded, and the opinion prevails that, if after the completion of the "three course" system the serologic reactions have been negative several times, the case may be regarded as definitely cured. Nevertheless, relapses do occur. The author reports five cases in which, in spite of intensive therapy, sero-

logic relapses became manifest in one case after almost three years and in the other four after about two years. He emphasizes the necessity of a prolonged control and, in some cases, longer periods of treatment than was formerly customary.

Clinica Medica Italiana, Milan

68: 1-72 (Jan.) 1937

Oxalic Acid Formation: Experiments with Dextrose and Uric Acid. C. Scaglioni.—p. 5.

Permanent Hyperketonemia in Hypothalamic-Hypophyseal Syndrome. (Cushing's): Case. L. Cannavo.—p. 23.

*Presence of Iminazol in Urine in Fatigue. R. Massione and G. Donini.—p. 35.

Latent Cardiovascular Insufficiency: Importance and Diagnostic Method. M. Bassi.—p. 53.

Iminazol in Urine in Fatigue.—Massione and Donini made determinations of iminazol in the urine in fatigued persons and found that it is proportional to the intensity of fatigue. According to the authors, fatigue is a reaction of the body to iminazol similar to the body's reaction to histamine. In both cases the body reacts with an increase of the cardiac beats and with blood hypertension, followed by a decrease of the beats and by hypotension; there are increase of glycemia and decrease of the alkali reserve. Fatigue is probably due to the presence of iminazols in the body, which are formed by destruction of muscular proteins during work. The difference in reaction of the body to iminazols in fatigue and to histamine is due to the lesser toxicity of iminazols compared to that of histamine, because the chemical nature of the substances is different, and also to the probable simultaneous production of antagonistic substances to iminazol during muscular work.

Cuore e Circolazione, Rome

21: 1-60 (Jan.) 1937

Variations of Pulmonary and Aortic Pressure from Experimental Coronary Obstruction. G. M. Cataldi.—p. 2.

*Oculocardiac Reflex in Normal Puberty: Electrocardiographic Study. G. Dagnini.—p. 9.

Cardiac Functional Tests in Compensated Valvular Defects. G. Bassi.—p. 31.

Oculocardiac Reflex in Normal Puberty.—Dagnini studied the behavior of the oculocardiac reflex in 230 normal girls ranging in age from 11 to 17 years. He used an apparatus by which the eyes were subjected to constant pressure of 600 Gm. for ten seconds. The production, intensity, time of latency and duration of the reflex were evaluated by the changes in the electrocardiograph, in lead 1, compared to an electrocardiographic curve taken immediately before compressing the eyes. The electrocardiogram was taken with the girls at rest on a bed. Care was taken to show on the tracings the starting and finishing time of ocular compression. The author considers slowing of the heart rhythm, shown by the electrocardiogram, a positive reflex, regardless of its intensity. The reflex was positive in 64 per cent of the cases when it was evaluated by the duration of a cardiac revolution as compared with that of the electrocardiographic curve at rest. It was positive in 44 per cent of the cases when it was evaluated by the number of beats during the ten seconds of ocular compression in comparison with that obtained in the same interval with the girl at rest. The larger number of positive results (75 per cent) was given by girls who, while being at rest, had a pulse frequency of within 70 and 110 beats per minute. The reflex was less frequent in bradycardia and in tachycardia. In 37 per cent of the cases the electrocardiogram showed the presence of respiratory sinus arrhythmia. The oculocardiac reflex was positive in 50 per cent of these cases. In 16 per cent of the cases of respiratory sinus arrhythmia the compression of the eyes made the cardiac rhythm regular. The phase of acceleration that existed in the curve of the patient at rest disappeared during ocular compression. The author's observation gives force to the opinions of those who state that respiratory sinus arrhythmia originates in a disequilibrium of the right vagus and sympathetic nerves. Ocular compression in these cases makes the vagal tonus predominate over the sympathetic with consequent control of the accelerated phase of the cardiac revolution. The most important modification of the electrocardiogram in lead 1 induced by ocular compression in the author's cases was the diminished amplitude

of the P wave, which was observed in 15 per cent of the cases. Changes of the ventricular complex were not observed. The amplitude of the P wave was most diminished in cases of intense oculocardiac reflex. This fact shows that ocular compression has a general action on the rhythm and a special action on the auricle. In a case of intense reflex an autonomic ventricular contraction took place. There were no disturbances of conduction.

Prensa Médica Argentina, Buenos Aires

24: 229-282 (Feb. 3) 1937

- Gonococcic Phlebitis: Case. J. J. Spangenberg and C. R. Belgrano.—p. 229.
- *Thoracoplasty, Using Finochietto's Paradoxical Incision. C. Albarracín Godoy.—p. 231.
- Asthma and Allergens. J. F. Tourreilles and Marta Brancato.—p. 246.
- Chronic Rheumatism. L. Puccio, C. F. Portela and A. Ricchieri.—p. 249.
- Neurodocitis of Cubital Nerve Due to Posttraumatic Cubitus Valgus: Cases. J. Michans and R. Roccatagliata.—p. 255.
- Acute Appendicitis in Elderly Persons. J. L. Mulcahy.—p. 264.

Thoracoplasty After Finochietto's Technic.—Albarracín Godoy says that Finochietto's technic for partial superior thoracoplasty with "paradoxical" incision was described in *La prensa médica argentina*, Sept. 18, 1935, page 1779. The technic is as follows: A transverse incision, 15 or 18 cm. in length, is made beginning at the midpoint within the acromion and the spinal border of the scapula (1.5 cm. below the spine of the scapula) and is then directed inward so as to cut the scapular angle. The teguments and then the diaphragmatic dorsal muscles are separated. The large dorsal muscle is dissected downward, whereas the rhomboid and the serratus magnus are dissected upward. Separation of the muscles results in the formation of a tunnel, at the floor of which the interserratic aponeurosis and the small serratus are resected and the musculothoracic space is approached. The scapula is displaced outward. Through the operative tunnel the ribs are resected. The operation ends with reparation of the skin, a drain being left. The author reports satisfactory results in several cases. According to him the operation is ideal for paravertebral and subscapular thoracoplasty. It has the following advantages: Lack of section of the muscles, which results in the production of only slight hemorrhage and trauma and no shock; less intense pain during and after the operation than that induced by the thoracoplasty made by other technics; lack of immediate and late complications. The operation is done under regional anesthesia and can be performed at one time or in several stages, depending on the general condition of the patient. The results of the operation depend on its performance according to indications and early development of the disease.

Semana Médica, Buenos Aires

44: 313-392 (Feb. 4) 1937. Partial Index

- *"Restrained" Symphysiotomy. J. H. Arrieta Yúdice.—p. 316.
- Treatment of Acute Nutritional Disturbances of Infants. A. Rascovsky.—p. 326.
- Fatal Recurrent Spontaneous Meningeal Hemorrhage: Case. A. Casiello.—p. 341.
- Mediastinal Syndrome from Foreign Body in Esophagus: Case. A. Segers and G. Bayley Bustamante.—p. 361.
- Vaginal Colpohysterectomy in Treatment of Uterovaginal Prolapse in Menopause. E. Bardi, A. H. Molino and R. A. Bocro.—p. 372.

Restrained Symphysiotomy.—According to Arrieta Yúdice, the technic of Zárate and Ortiz Pérez in "restrained" symphysiotomy is of value for the management of labor in cases of contracted pelvis. The operation, with slight variations, may be described by the following technic: puncture of the skin at the middle of the symphyseal interarticular line and progressive section of the interarticular fibrocartilage and of the arcuate ligament up to the upper border of the symphysis, hemostasis and suture of the opening of the original puncture. The ligaments at the point of insertion of the abdominal muscles are left undisturbed. They form the limit of a pubic diastasis of 4 or 5 cm., which results from the section of the interarticular fibrocartilage and of the arcuate ligament and prevent further opening of the diastasis. The operation is partial and almost subcutaneously performed and permits uneventful delivery of the fetus. Hemorrhages, symphyseal and presymphyseal suppuration, hematoma and incontinence of the urine do not follow the operation, and disturbances of the gait and genital prolapse are not late complications. Owing to the

fact that late pubic consolidation takes place by fibrous proliferation, the amplitude of the pelvis induced by the operation is permanent.

Medizinische Klinik, Berlin

33: 185-220 (Feb. 5) 1937. Partial Index

- Juvenile Hemorrhages Resulting from Cystic Glandular Hyperplasia and Effect of Hormones of Anterior Lobe of Hypophysis. H. O. Neumann.—p. 189.
- Thyroid and Circulation. J. Rühl.—p. 193.
- *Enterococcic Meningitis. B. Kemkes.—p. 196.
- Swimming Pool Infections. Poelchau.—p. 197.
- Diabetes Problem. R. Pick.—p. 198.
- Depth Action of Short Waves. J. Kowarschik.—p. 200.

Enterococcic Meningitis.—After pointing out that meningitis of enterococcic origin is comparatively rare, Kemkes reports two cases that were recently observed at his clinic, both of which had a fatal outcome. In the first case the necropsy revealed a purulent meningo-encephalitis, in the second case a purulent leptomeningitis. The bacteriologic examination of the first patient disclosed enterococci in three specimens of cerebrospinal fluid and, during the necropsy, in two pus foci of the brain; in the second patient enterococci were found in one specimen of cerebrospinal fluid and, during necropsy, in a pus focus at the cerebellopontile angle. The strains of enterococci were subjected to various tests and it was found that the enterococci were of the type B in both patients. Since the enterococci were present in pure culture in the spinal fluid as well as in the pus foci, the author thinks that it cannot be doubted that they caused the fatal meningitis.

Monatsschrift f. Geburtshilfe u. Gynäkologie, Berlin

104: 1-128 (Dec.) 1936. Partial Index

- Pathogenesis of Premature Detachment of Placenta. K. Heim.—p. 1.
- Biologic Estimation of Menstruation and Pregnancy. A. Greil.—p. 23.
- *Calcium Content of Blood in Tetany Resulting from Instability. R. Spiegler and W. Henkel.—p. 42.
- Extraperitoneal Endometriosis of Fossa Ovalis Femoris and Tar Cysts of Both Ovaries. F. Stähler.—p. 53.
- Uterus in Case of Cystic Mole. G. Traina.—p. 82.
- *Mumps and Female Genitalia. H. Bosch.—p. 99.
- Genesis of Polyposis of Mucous Membrane of Corpus Uteri. W. Pieper.—p. 102.

Calcium Content of Blood in Tetany Resulting from Instability.—Spiegler and Henkel point out that conditions like tetany, osteomalacia, rickets and pregnancy, which are accompanied by disturbances or changes in the potassium-calcium content, are caused by endocrine or similar changes, so that it seems justified to attempt a modification of the calcium metabolism by endocrine therapy. They decided to investigate whether every disturbance in the hormone metabolism is accompanied by changes in the potassium-calcium content. They studied the potassium-calcium content during the intermenstrual and during the menstrual period, employing the electro-ultrafiltration method of Bechold. Tabular reports indicate that in the examined cases the total calcium content was increased; the total potassium content, on the other hand, was reduced. This, of course, is in keeping with the antagonistic character of the two minerals. However, the ultrafiltrable portions of the two minerals showed the same behavior; they increased noticeably during the menstrual period. Entirely different was the behavior of the electro-ultrafiltrable portions of the two minerals; whereas that of calcium was increased during the menstrual period, that of potassium was reduced. The authors further studied the response of the potassium-calcium content to the administration of glandular products during the different menstrual phases. They found that the administration of parathyroid extract produces an increase in the potassium-calcium values during the intermenstrual as well as during the menstrual period. However, the values are not higher than those observed in other cases, so that the total potassium-calcium content of the blood is not more strongly influenced by the parathyroid extract during the menstrual period than is the case outside it. The authors describe two cases of tetany that developed during menstruation and in which no essential changes in the calcium metabolism could be detected. They demonstrate that the calcium metabolism was not changed as it should have been if the tetany was of the thyroprival type and so they designate both cases as pure instability tetanics. They think that the fever, particularly its sudden increase, was

the eliciting factor for the tetany. Another case is cited in which sudden heat stasis produced an attack of tetany outside the menstrual period.

Mumps and Female Genitalia.—Bosch observed that, among the women who came under his observation for sterility, a large number had genital hypoplasia. He thinks that in many of these cases the genital hypoplasia might be the result of the malnutrition during and after the war. However, he also found that the anamnesis frequently revealed an attack of mumps during the prepuberal or puberal age and in many of these cases it was stated that the mumps had been accompanied by pains in the lower part of the abdomen. After directing attention to the concurrence of mumps with orchitis, he points out that some authorities believe that mumps may also cause oophoritis. He himself thinks that the development of mumps during the puberal age and the fact that later genital hypoplasia and sterility are often observed in such patients indicate that disorders of the female genitalia are comparatively frequent after mumps. These disorders probably inhibit further development. Moreover, there is a possibility that other incretory glands, for instance the hypophysis, may become impaired by the mumps. Disorders of the hypophysis could of course result also from the meningitis that is known to occur in mumps. The author says that, as regards fertility, the prospects of endocrine therapy are not favorable.

Münchener medizinische Wochenschrift, Munich

84: 241-280 (Feb. 12) 1937. Partial Index

- Clinical Significance of Hematuria. W. Nonnenbruch.—p. 241.
*Influenzal Peritonitis. Uebermuth.—p. 243.
Remarks on Function of Blood in Patients with Circulatory Disorders. G. Zaepfer and H. Olmes de Carrasco.—p. 245.
Agranulocytosis and Hypersensitivity to Aminopyrine. H. Disselmeyer and O. Zorn.—p. 247.
Impairment of Corpus Striatum After Use of Potent Anesthetics. H. Schmitz.—p. 249.
*Functional Pathology of Diverticulosis of Colon: Question of Late Results of Lead Poisoning. J. Hartmann.—p. 252.

Influenzal Peritonitis.—Uebermuth observed in the course of an influenza epidemic a case of influenzal peritonitis after an initial temporary enteritis. The clinical manifestations were those of an advanced ileus, so that an operation was resorted to. This disclosed a diffuse suppurating peritonitis with subserous focal hemorrhages. These aspects, together with leukopenia, conjunctivitis, initial diarrhea and the development in the course of an influenza epidemic, led to the diagnosis of a genuine peritonitis of influenzal origin. But, although the later course of the case proved that the laparotomy had been unnecessary, the author thinks that under similar conditions reliance on conservative measures is not always justified, because the differential diagnosis is so difficult that, in order to prevent diagnostic errors, laparotomy is advisable whenever there is the least doubt.

Diverticulosis of Colon, Particularly After Lead Poisoning.—Hartmann shows that from the anatomic point of view there is a difference between true diverticula, in which there is a protrusion of the entire intestinal wall, and acquired or false diverticula, in which only the mucosa and submucosa are involved. The first type is usually found on the jejunum and ileum, the second type usually on the colon, especially its sigmoid portion. The author discusses the acquired form, pointing out that old age, obesity and intestinal ptosis are factors predisposing to weakness of the intestinal wall and that peristaltic pressure fluctuations may produce diverticula at sites where the intestinal wall is weak. He devotes himself principally to chronic spastic constipation as cause of the formation of diverticula and particularly their occurrence in lead poisoning. Persons who have had lead poisoning frequently complain in after years of chronic constipation, digestive disturbances and colic. If such patients do not exhibit signs of late sequelae of lead intoxication, a connection of the intestinal disorders with the lead poisoning is usually rejected. However, the author describes two cases which demonstrate that late intestinal symptoms may be the manifestation of diverticulitis and colitis and these in turn probably the result of an earlier lead intoxication. The examination revealed in the first case colitis and diverticulitis and in the second case diverticulosis of the transverse colon. Both patients had a history of lead

poisoning and chronic spastic constipation and the author concludes that it is justified to assume a connection between lead intoxication and constipation on the one hand and the formation of diverticula on the other hand.

Strahlentherapie, Berlin

58: 1-192 (Jan. 23) 1937. Partial Index

- Influence of Irradiation of Thyroid on Ovary. E. Momigliano.—p. 53.
*Roentgen Treatment of Hyperthyroidism. P. Hess.—p. 74.
Use of Weak Radium Therapy in Dermatology. S. R. Brünauer.—p. 83.
Investigations on Ultraviolet Dosimetry. W. Friedrich and E. Fischer.—p. 94.
*Modification of Action of Roentgen Rays on Malignant Tumors by Injection of Sugar and Insulin. K. Inouye.—p. 125.
Photographic Procedure for Testing Density of Radium Preparations. K. G. Zimmer and P. M. Wolf.—p. 174.

Roentgen Treatment of Hyperthyroidism.—Hess reports the results of roentgen therapy in 140 cases of hyperthyroidism. He shows that among the patients who were not influenced or only somewhat improved there were many in whom the treatment had been inadequate. He stresses the necessity of an adequate total dose and of a correct psychologic treatment. There is no mortality as the result of irradiation; on the other hand, there are many severe cases that are unsuitable for other treatments and yield only to irradiation.

Injection of Sugar and Insulin in Roentgen Therapy of Malignant Tumors.—Inouye shows that the efforts to improve the effect of irradiation on tumors tend in two directions; either the ray dosage is changed or the developmental conditions of the tumor are altered. He tried to change the tumor metabolism. He describes experiments on rabbits which proved that the intravenous injection of sugar solution increases the metabolism of the rabbit sarcoma. It was also found that the injection of sugar solution before the irradiation increases the action of roentgen rays on the rabbit sarcoma in that the inhibiting action of the rays is increased. The injection of insulin after the roentgen irradiation supports the inhibiting action of roentgen rays. Thus it is advisable to inject insulin in order to prolong the effect of the roentgen rays. The injection of sugar solution alone improves the general condition of the animals but also the growth of sarcoma. The roentgen irradiation alone reduces the size of the tumors but also impairs the general condition and shortens the life of the animals. The combination of the injection of sugar solution with roentgen irradiations inhibits the tumor growth and prolongs the life of the animals.

Wiener klinische Wochenschrift, Vienna

50: 211-242 (Feb. 19) 1937. Partial Index

- *Clinical Significance of Nonprotein Nitrogen. W. Nonnenbruch.—p. 211.
Studies on Resorption in Rectum in Normal Persons and in Those with Habitual Constipation. M. Taubenhaus and E. Amann.—p. 214.
*New Indication for Total Extirpation of Thyroid. C. Ewald.—p. 217.
Correlations of Hypophysis and Diencephalon. W. Raab.—p. 218.
New Tube for Blood Transfusion. W. M. Kreiner and R. Neurauter.—p. 222.

Clinical Significance of Nonprotein Nitrogen.—Nonnenbruch defines nonprotein nitrogen as the nitrogenous constituents of the body fluids and tissues that remain after removal of the proteins. The normal quantity of nonprotein nitrogen amounts to about 30 mg. per hundred cubic centimeters. About one half of the nonprotein nitrogen is accounted for by urea and the other half is made up of a number of substances, collectively designated as nonureal rest nitrogen or residual nitrogen, which includes different substances from simple ammonia to complicated products of protein cleavage. He points out that the so-called differential rest nitrogen (D N) has received considerable attention as an indicator of toxic protein decomposition or of the presence of polypeptides. However, his own investigations revealed that the so-called differential rest nitrogen is an entirely unreliable factor. An increase in the residual nitrogen does not signify a renal disturbance, for its constituents are not eliminated as such in the urine but undergo further changes in the intermediate metabolism. An increase in the nonprotein nitrogen does not necessarily indicate renal insufficiency. Increased residual nitrogen values suggest a disturbance in the intermediate metabolism, which is found chiefly in hepatic disturbances that are not always severe. Occasionally increased values are found in syphilitic patients

after treatment with arsphenamine or in hepatic cirrhoses. The highest values are generally observed in cases of acute yellow atrophy. The author reports that, in collaboration with another investigator, he detected a relationship between the residual nitrogen and the urea nitrogen. He cites observations which indicate that urea has an especial significance for the normal and complete course of the intermediate protein decomposition.

Extirpation of Thyroid in Severe Cardiac Defects.—Ewald reviews the results of total thyroidectomy in cases of severe heart disease. Another case is cited in which the thyroidectomy improved the cardiac disorder, but myxedema developed, which could not be adequately influenced by thyroid preparations. The patient became cachectic and died two months later. The author cites several investigators who advise caution in view of the fact that the late results of total thyroidectomy cannot be foreseen; however, he also admits that sudden and considerable improvements have induced others to disregard possible dangers. He himself is of the opinion that as yet total thyroidectomy is not justified when medicinal therapy fails in severe cardiac defects. He thinks that this attitude is permissible until it has been definitely proved that subtotal extirpation of the thyroid is inadequate in such cases.

Polska Gazeta Lekarska, Lwów

16:157-172 (Feb. 28) 1937

*Roentgen Therapy in Abscess of the Lungs. P. Adamowicz and Z. Kulig.—p. 157.

Social-Pathologic Significance of Rheumatism and Its Conquest. Marian Kęwalski.—p. 160.

Antistreptin Therapy in Erysipelas. Marta Baranowska.—p. 162.

*Severe Erysipelas Treated with Hydrochloride of Sulfamidochrysoidyn (Prontosil): Three Cases. J. Gotlib.—p. 163.

Prognosis and Course of Confinement in Primiparas with Unfixed Head Presentation at Termination of Pregnancy. M. Kosiński.—p. 165.

Roentgen Therapy in Abscess of the Lungs.—Adamowicz and Kulig report their results with the use of roentgen rays in eleven patients who suffered from abscess and necrosis of the lungs. Complete recovery occurred in eight cases; two patients died during treatment, although at first they showed signs of improvement, and one patient relapsed after having been apparently on the road to recovery for ten weeks. It is remarkable that each patient treated with roentgen rays became worse after the first and sometimes after the second application: the patients felt weak and exhausted and their temperature rose, although their cough diminished and became milder, but after the third application a marked improvement could be noticed. The roentgen dosage and the intervals between treatments cannot be schematized but must be regulated according to individual cases.

Treatment of Erysipelas with Prontosil.—Gotlib says that the question of how to treat erysipelas has not yet been solved. In one hospital during the last three years there were more than 700 cases with a mortality rate of 6 per cent. All kinds of medication have been tried, with little success. Lately a dye derivative of sulfanilamide (prontosil) has been tried. Gotlib reports three cases of severe erysipelas successfully treated with this substance. One was a case of inflammation of the tibia of eight years' duration, which was healing slowly but erysipelas developed; the other two were cases of erysipelas of the face. To all patients he administered orally six tablets of this preparation a day. Marked improvement was noted in twenty-four hours and complete recovery occurred in a few days. The amounts used in the three cases were 4.8, 6.2 and 7.2 Gm.

Sovetskaya Khirurgiya, Moscow

Pps. 573-782 (No. 10) 1936. Partial Index

Mechanism of Intracranial Pains. W. Penfield.—p. 586.

*Pathogenesis of Jacksonian Epilepsy. A. Sozon-Yaroshevich.—p. 597.

Cisternal Puncture as Auxiliary Diagnostic Method in Brain Tumors. Ya. M. Pavlovskiy.—p. 602.

Osteoblastic Meningiomas. I. S. Vaskin.—p. 610.

Clinical Course of Medulloblastoma. A. I. Geymanovich and E. M. Khaet.—p. 616.

Results of Treating Hydrocephalus with Endoscopic Coagulation of Choroid Plexus. T. Putnam.—p. 624.

Jacksonian Epilepsy.—On the basis of a study of eighty-two cases of Jacksonian epilepsy in which operation was performed at the Traumatologic Institute of Leningrad, Sozon-Yaroshevich concludes that the primary cause of the condition has not been elucidated. Among the cases studied were motor,

sensory and sensorimotor types. The average time elapsed between the primary disease or trauma and the onset of epileptic convulsions was three and one-half years. The etiologic factors may be of a most varied kind. In their material there were thirteen cases (15.8 per cent) of neoplasm, four (4.8 per cent) of parasites (*Echinococcus*, *cysticercus*), twenty-nine (35.4 per cent) of inflammatory-degenerative type, such as typhus, meningitis and grip; twenty-one cases followed open trauma and fifteen (43.9 per cent) concealed trauma. It is not the primary disease but the pathologic alterations caused by it in the brain and its functions that are responsible for the epileptic seizures. The pathologic changes found were of a chronic type. These were edema and thickening of the pia and the arachnoid, hyperemia and new blood vessel formation, localized serous arachnoiditis with partial localized obliteration of the subarachnoid space, and formation of scar tissue along the course of the blood vessels. These alterations were found in all the cases. On the other hand, alterations in the cortex in the form of scars, softening or thickening with some edema and hyperemia of the pia were found in only half of the cases. Alterations in the dura mater and the bone with ecchymoses, new blood vessel formation and thickening of a diffuse sclerosing type and scars were even less frequent. These pathologic changes are not essential for the production of epilepsy, as they were absent in a number of the cases. The least frequent alterations were those found in the subcortical zone in the form of scars of the white substance or of foreign bodies, such as a bullet, bone or cyst. The most constant were the chronic alterations of the arachnoid and of the cerebral blood vessels. Their localization was most varied. It was found not only in the sensorimotor zone but likewise in the frontal, temporal and occipital localizations. The author concludes that the pathologic alterations in the arachnoid with obliteration of the subarachnoid space and the changes in the cerebral blood vessels with consequent disturbance in the circulation of the cerebrospinal fluid constitute the essential alterations in epilepsy. The scars on the surface of the brain or in its substance are of importance only so far as they are capable of causing alterations in the lymphatic circulation and the distribution of the cerebrospinal fluid in the subarachnoid space of the large hemispheres.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81:749-856 (Feb. 20) 1937. Partial Index

Asthenopia and Its Significance for Medical Practitioner. J. Pickema.—p. 753.

*Encephalitis and Infection. S. Heringa.—p. 760.

*Influence of Liver Extract on Cholesterolemia and Psychotic Aspects of Involution Melancholia. J. A. T. Ligterink, C. Simons and N. Speijer.—p. 768.

Page's Disease of Nipple. W. L. L. Carol and J. R. Prakken.—p. 771.

Hydrocephalus in Twins and Studies on Heredity. J. A. Stroink.—p. 779.

Encephalitis and Infection.—Heringa reports the case of a youth, aged 16, who, in the course of a septic infection originating in an injury on the left hand, developed a cerebral disorder with the clinical aspects of lethargic encephalitis. Further the author describes three cases of disseminated encephalomyelitis in which the influence of focal infection is evident. He assumes that preexisting neurotropic viruses were activated by the focal infection. Attention is called to the danger involved in dental interventions in neurotropic infections.

Influence of Liver Extract on Melancholia.—Ligterink and his associates point out that Georgi resorted to the injection of adrenal cortex extract in patients with involution melancholia because it is known that this extract reduces the cholesterol content, which is increased in those patients. According to Georgi's report he not only reduced the cholesterol content but also improved the psychotic aspects. The authors point out that these results give rise to several problems, particularly the question whether the improvement in the psychotic disorder is the result of the reduction in the cholesterol content. In trying to answer this question the authors gave injections of liver extract to six patients with involution melancholia. They found that the injections resulted in a reduction of the previously increased cholesterol content of the blood, but they observed no change in the mental condition of the patients. From this observation they conclude that the therapeutic results produced by Georgi cannot be entirely ascribed to the cholesterol reducing action of adrenal cortex extract.

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THE DIAGNOSIS OF GASTRIC CARCINOMA AND PEPTIC ULCER

THE COMPARATIVE VALUE OF VARIOUS PROCEDURES,
WITH SPECIAL REFERENCE TO THE
GASTRIC ANALYSIS

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Accuracy in the diagnosis of gastric and duodenal lesions has been greatly increased by improvement made in the technic and interpretation of fluoroscopic and x-ray studies of the gastro-intestinal tract. Nevertheless, the early diagnosis of cancer of the stomach remains a very difficult problem, and it is only through the solution of this problem that the results of treatment can be improved. Up to the present time surgery offers the only satisfactory means of treatment and, as the methods of Billroth and their various modifications are still considered technically adequate, it is doubtful whether in the future any startling advances will be made in the technical approach to curing carcinoma of the stomach. Most of the literature on carcinoma of the stomach concerns itself with variations in the technic rather than with the currently more important subject of early diagnosis. For this reason the experience in this clinic is being summarized to emphasize the importance of a properly performed gastric analysis as an aid in the early diagnosis of gastric and duodenal lesions.

Interest in the examination of gastric secretion has been revived since the introduction of histamine as a gastric secretagogue,¹ but as yet opinion is divided as to the diagnostic importance of the gastric analysis.² It is my purpose in this paper to submit the gastric analyses in 152 proved gastric and duodenal lesions, to point out their importance in the diagnosis of these lesions and to emphasize certain features that are important in obtaining accurate results. I realize that this is a comparatively small group of cases, but it must be remembered that instead of using statistics from the records I investigated and followed each case. With the exception of the cases reported by Bloomfield and his associates, this is one of the largest personally investigated series.

From the Department of Surgery of the New York Hospital and Cornell University Medical College.

1. Carnot, P.; Koskowski, W., and Liebert, E.: Influence of Histamine on Digestive Secretion in Man, *Compt. rend. Soc. de biol.* **86**: 575, 1922.

2. Friedenwald, Julius: A Clinical Study of a Thousand Cases of Ulcer of Stomach and Duodenum, *Am. J. M. Sc.* **144**: 157, 1912. Moynihan, Berkeley: Some Problems on Gastric and Duodenal Ulcer, *Brit. M. J.* **1**: 221 (Feb. 10) 1923. Brown, T. R., in Cecil R. L.: *Textbook of Medicine*, Philadelphia, W. B. Saunders Company, 1928, p. 655. Eusterman, G. B.: The Newer Aspects of Gastric Carcinoma, *Radiology* **6**: 409 (May) 1926. Comfort, M. W., and Vanzant, Frances R.: Gastric Acidity in Cancer of the Stomach, *Proc. Staff Meet., Mayo Clin.* **8**: 271 (May 3) 1933. Vanzant, Frances R.; Alvarez, W. C.; Berkson, Joseph, and Eusterman, G. B.: Changes in Gastric Acidity in Peptic Ulcer, Cholecystitis and Other Diseases, *Arch. Int. Med.* **52**: 616 (Oct.) 1933.

The method used in obtaining specimens of gastric juice is that suggested by Bloomfield and Pollard.³ The examination is made after a fast of twelve hours, with histamine used as a stimulus in a dose of 0.1 mg. to each 10 Kg. of body weight. The fasting contents are withdrawn, the histamine is injected subcutaneously, and then the stomach contents are continuously aspirated with a syringe for a period of thirty minutes, the aspirated contents being divided into three ten-minute specimens. The acidity is then titrated against tenth normal sodium hydroxide, Töpfer's reagent and phenolphthalein being used as indicators. The greatest ten-minute volume of secretion and the highest titratable acidity attained are considered the indexes of gastric function.

To insure an accurate determination of this function, three requisites must be recognized. First, the person performing the aspiration must be a physician familiar with the technic of aspirating the stomach, and he must necessarily be interested in the procedure. The delegation of the test to a nurse or to a technician repeatedly leads to error. Second, the stomach must be aspirated absolutely dry before the fractional specimens are collected. This procedure frequently takes from ten to fifteen minutes, and on occasion the test may have to be abandoned for the day because of the constant regurgitation of bile. Third, dilution of the gastric contents must be avoided;⁴ the patient should be required to expectorate all saliva, and all bile-tinged specimens should be discarded. The volume of secretion characteristically follows a more or less regular curve,⁵ and this characteristic can be used to check the accuracy of the procedure. If these three requirements are met, an accurate estimation of the gastric secretion can be made. It has been found that repeated tests on the same patient yield approximately identical results.

The importance of following the described procedure in order to obtain an accurate analysis cannot be stressed too greatly. It has been my experience on numerous occasions that the results obtained by the relatively uninterested technician or nurse will not compare with the results of one who is responsible for and interested in the correct diagnosis of the patient.

I was fortunate in having a small group of patients who had been subjected to the generally accepted analysis by technicians using a modified Ewald test meal. When the results of these studies were compared with those generally reported in the literature⁶ a surprising agreement was apparent in the results. Considering

3. Bloomfield, A. L., and Pollard, W. S.: The Diagnostic Value of Studies of Gastric Secretion, *J. A. M. A.* **92**: 1508 (May 4) 1929.

4. Gorham, F. D.: The Factor of Dilution in Gastric Analysis, *J. A. M. A.* **81**: 1738 (Nov. 24) 1923.

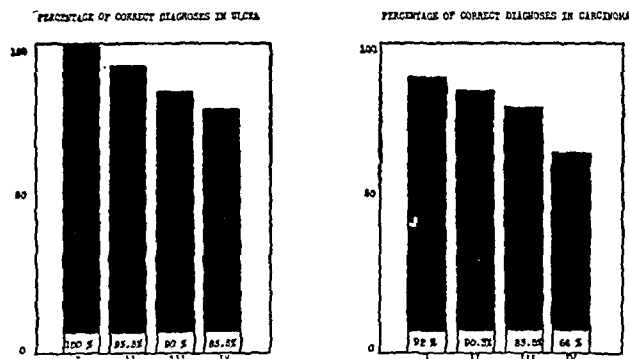
5. Gompertz, L. M., and Vorhaus, M. G.: Clinical Aspects of Gastric Secretion, *J. Lab. & Clin. Med.* **11**: 14 (Oct.) 1925. Bloomfield, A. L., and Keefer, C. S.: Gastric Motility and the Volume of Gastric Secretion in Man, *J. Clin. Investigation* **5**: 295 (Feb.) 1928.

6. Friedenwald,² Brown,² Eusterman,² Comfort and Vanzant,² Vanzant, Alvarez, Berkson and Eusterman.²

gastric and duodenal ulcers together, most studies agree that between 10 and 15 per cent are associated with a subnormal acidity or anacidity; in this group tested with the Ewald meal, the percentage was 13. However, when the same patients were subjected to the carefully performed analysis described, the gastric secretion was without exception within or higher than the normal limits.

Since the error in gastric analysis results in too low rather than in too high a value of secretion, my figures for gastric secretion in cases of carcinoma vary little from those usually obtained; i. e., from 10 to 15 per cent of gastric cancer have a normal or high acidity.

The normal standard of gastric secretion as obtained by the method just described has been determined by Bloomfield and Pollard. In general it may be said that the normal range of free hydrochloric acid is between 60 and 110 degrees and the maximum ten-minute secretory volume between 15 and 35 cc. Both the acidity and the volume of secretion tend to become lower with advancing years. It has been found that practically all persons with gastric and duodenal ulcer have high acidity and large secretory volume, but persons with high acidity and large volumes do not all have ulcer.



Differential diagnosis: I. Diagnosis by gastric analysis. II. Diagnosis by operation. III. Diagnosis by x-rays. IV. Diagnosis by history and physical examination.

Gastric analyses were done on ninety patients with peptic ulcer and on sixty-two patients with carcinoma of the stomach in an effort to determine the diagnostic value of a properly performed gastric analysis. The analysis led to a correct diagnosis in 96 per cent of the cases. All the 152 patients either were operated on or came to postmortem examination. All ninety patients with peptic ulcer had a secretion of free hydrochloric acid that fell within normal limits (from 60 to 110 degrees) or were above normal. With five exceptions, the sixty-two patients with cancer of the stomach had a low acidity or anacidity. One of the exceptions (with an acidity of 90 degrees of hydrochloric acid) proved at autopsy to be carcinoma of the duodenum. One other (with an acidity of 60 degrees of free hydrochloric acid) occurred in a man with pyloric obstruction of one year's duration, with an antecedent history of indigestion rather typical of ulcer pain, of ten years' duration. The other three had relatively short histories with no symptoms suggestive of antecedent ulcer.

The accuracy of the gastric analysis compared with other methods of diagnosing ulcer and carcinoma is shown in the accompanying chart. It will be seen that the diagnosis was correct in a larger percentage of cases when it was based on gastric analysis than when any other single method was relied on.

Taking the 152 cases of stomach lesions, both ulcer and carcinoma, as a group, one finds that the clinical diagnosis was correct in 77 per cent of the cases and the roentgenographic diagnosis in 88.2 per cent. It was interesting to find that the diagnosis made by the surgeon at the operating table by inspection and palpation was correct in 93 per cent of the cases, whereas the diagnosis based on the gastric analysis was correct in approximately 97 per cent of the cases.

The following cases may serve as illustrations:

REPORT OF CASES

CASE 1.—A woman, aged 44, had been operated on five months previously for a perforated ulcer. She had had no antecedent symptoms. After operation she was placed on a strict diet, in spite of which she had nausea and a sensation of motion of her stomach following meals. Physical examination was not remarkable except for tenderness in the epigastrium and a well healed right rectus wound.

Roentgen examination revealed a defective duodenal cap with a 25 per cent twenty-four hour gastric retention. The gastric analysis showed a 7 per cent free hydrochloric acid and total acid of 13 degrees.

Exploratory laparotomy was performed. The surgeon diagnosed the lesion as a parapyloric ulcer causing obstruction, and a posterior gastro-enterostomy was done.

The immediate postoperative course was uneventful, but during the next six months the patient gradually lost weight and strength, and a marked ascites developed. At autopsy a primary infiltrating scirrhus carcinoma of the stomach was found, with metastases to regional nodes, omentum and gallbladder.

Clinically, radiologically and at the operating table the lesion appeared to be a benign ulcer; the gastric analysis, however, favored the diagnosis of carcinoma.

CASE 2.—A man, aged 50, had had recurrent attacks of epigastric pain during the preceding three years. For the past two months the pain had become quite severe, was almost constantly present and was associated with nausea and frequent attacks of vomiting. Physical examination was not remarkable save for slight tenderness on deep pressure in the epigastrium. Roentgenograms revealed a large filling defect in the region of the antrum extending as far as the pylorus, suggestive of carcinoma. There was a high degree of acidity in all specimens—the highest was 96, with a secretion of 50 cc.

Gastric exploration was performed and a mass 8 cm. in diameter was found on the posterior wall of the stomach in the prepyloric region. A diagnosis of carcinoma was made and a gastric resection was performed. Serial sections of the lesion failed to reveal any evidence of carcinoma. The patient is now well and healthy, one year after operation.

This is another case in which all methods of diagnosis failed except that based on the gastric analysis.

CASE 3.—A man, aged 50, first seen in February 1934, had had for the preceding four years recurrent epigastric pain relieved by food and sodium bicarbonate. During the six months before entry into the hospital the pain changed to a constant dull ache and caused the patient to lose his appetite. There was no vomiting or melena. The physical examination was not remarkable except for tenderness to deep pressure in the epigastrium. Roentgenograms revealed a penetrating lesion on the lesser curvature, which was diagnosed as a benign gastric ulcer. The gastric analysis failed to show any free acid. The patient was placed on a restricted diet, on which he gained weight and felt greatly improved. He was discharged, to be followed in the outpatient department, where roentgenograms were taken six months later. In spite of symptomatic improvement and a 10 pound (4.5 Kg.) gain in weight, the roentgenograms revealed a slightly enlarged crater. He was readmitted in October 1934, and gastric exploration revealed a huge carcinoma, involving the upper two thirds of the lesser curvature of the stomach, which was deemed inoperable. Anacidity was the only feature in this man's disease that made one suspicious of a malignant condition.

CASE 4.—A man, aged 73, entered the hospital because of abdominal cramps of one month's duration, associated with nausea and vomiting for the past two months. He had lost 15 pounds (6.8 Kg.) in three weeks' time. Examination revealed

that the patient was somewhat undernourished and dehydrated but in no great distress. The abdomen was distended, and moderate tenderness was present in the lower part. No masses were felt. Roentgenograms revealed an almost complete pyloric obstruction and a huge stomach with twenty-four hour gastric retention. The gastric analysis showed 100 degrees of free hydrochloric acid, with volumes of from 40 to 60 cc. for each ten-minute specimen. In March 1933 a gastro-enterostomy was performed under local anesthesia for a complete pyloric obstruction supposedly caused by carcinoma of the pyloric end of the stomach. The postoperative course was uneventful and five weeks later the pyloric end of the stomach was resected in the belief that the lesion was carcinomatous, although it had diminished to half its original size. Serial sections proved that the mass was fibrous tissue surrounding an indurated benign ulcer. Three years after operation he is well and healthy.

These results lead one to some very definite conclusions. Obviously a small percentage of gastric lesions defy all the means now available for their correct diagnosis, including actual exploration, and hence their proper treatment is impossible.⁷ The decision as to whether primarily medical or surgical treatment is to be given any individual lesion should be governed by the patient's age and history, by the roentgenographic appearance and size of the ulcer, and by the gastric secretion. No single finding is infallible, but a lesion in the stomach associated with a low or absent gastric acidity is one that makes operative intervention advisable. This statement can be made only if one presupposes an accurate gastric analysis. Palmer,⁸ in his review of the literature on peptic ulcer and achlorhydria, has shown quite conclusively that a benign ulcer with achlorhydria is very unusual, and in this series there was no benign ulcer with low or absent acid. It is in the small group of patients who have a low acidity with all other examinations pointing to a benign lesion that a properly performed analysis is most valuable. These are the patients on whom a clinician is most likely to delay surgical therapy, and he thereby loses the opportunity to attack the lesion in an early and resectable stage.

CONCLUSIONS

1. Given a lesion of the stomach, a low acidity or anacidity is strong presumptive evidence of carcinoma; such a condition demands surgical intervention. A normal or high acidity in gastric or duodenal lesions points to ulcer.

2. The actual collection of the gastric secretion should be made in the manner described, to avoid inaccuracy.

3. In comparison with the other methods of diagnosis, the gastric analysis, properly done, was the most accurate in the 152 cases studied, although it was not infallible.

4. The information obtained from a properly performed gastric analysis is of practical value in directing one's treatment of a gastric lesion.

1300 York Avenue.

7. Bloomfield, A. L.: The Diagnosis of Early Cancerous Changes in Peptic Ulcer, *J. A. M. A.* **104**: 1197 (April 6) 1935.

8. Palmer, W. L.: The Mechanism of Pain in Gastric and Duodenal Ulcer: I. Achlorhydria, *Arch. Int. Med.* **38**: 603 (Nov.) 1926.

He Who Enters His Father's Profession.—To count on the help and influence of other men, to wonder what A and B will do for us, are evidence of weakness. Especially, a young man must be careful to reckon a successful father not among his assets but among his liabilities. For he who enters his father's profession counting on his father's name enters it at his peril: and his venture is the more perilous, if he takes, in the same profession, the same line.—Paget, Stephen: *Confessio Medici*, New York, Macmillan Company, 1931.

FERTILITY AND CONTRACEPTION IN NEW YORK AND CHICAGO

RAYMOND PEARL

BALTIMORE

In connection with an investigation¹ of human fertility and the factors that influence it, based on the complete reproductive histories of 30,949 women delivered in hospitals during 1931 and 1932 and resident in selected large cities east of or on the Mississippi River, it became necessary to extract separately the material for New York City. For comparison with those data the material collected in the second largest city in the country, Chicago, seems particularly suitable. The samples from the two cities are of nearly the same size and in other respects closely similar.

All the original records and histories on which this study is based were obtained from the patients in hospital obstetric services by qualified medical persons (or in a few instances by trained nurses working under medical supervision).

It is my purpose in this paper to present such a comparison. Its interest arises from a number of facts. In the first place these two cities together in 1930 contained 8.4 per cent, or almost exactly a twelfth, of the total population of continental United States. They represent the farthest progression of the process of urbanization in the western hemisphere. All students of population agree that this process has produced as one of its associated phenomena profound alterations, both quantitative and qualitative, in human reproduction. There is also general agreement that one of the basic problems of population today is the critical scientific appraisal of the effects of contraception, as actually practiced. The statements and figures of birth control propagandists cannot quite be relied on to furnish such an appraisal. They tend to confuse the possibilities of their technics as used by selected groups of specially instructed women with the actualities as manifested in random samples of the general population, which include among others ignorant, stupid and feckless folk all too often economically so situated as to make the physiologically adequate practice of contraception by any methods now known extremely difficult if not actually impossible. Birth control practices involve as a considerable element mental attitudes and habituations—in short, individual and group psychologic factors. It is a matter of great interest to know whether there are significant differences in degrees and kinds of controlled fertility in different large communities which are known to differ in their attitudes and outlooks in regard to other matters.

SIZE OF SAMPLES AND AGE OF WOMEN

Table 1 gives the total number of women in the New York and Chicago samples and their average ages in years at the time of record. In this and all following tables in this paper figures in parentheses are percentages, rounded off to whole integers. The separa-

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1. This study has been generously aided from its inception by grants from The Milbank Memorial Fund. Detailed progress reports on the work have been published as follows: Pearl, Raymond: *Contraception and Fertility in 2,000 Women*, *Human Biol.* **4**: 363-407 (Sept.) 1932; *Contraception and Fertility in 4,945 Married Women*, *ibid.* **6**: 355-401 (May) 1934; *Third Progress Report on a Study of Family Limitation*, *Milbank Mem. Fund Quarterly* **14**: 258-284, 1936. In these reports will be found details as to the methods of collecting and analyzing the material.

tion into groups of primiparas² (women who have experienced up to the time of record only one pregnancy) and multiparas² (women who have experienced two or more pregnancies) is occasioned by the fact that all earlier studies have shown that the extent and results of contraceptive practices are significantly different in these two groups. "Noncontraceptors" are women who have made no attempt whatever at any time to prevent conception. "Contraceptors," for purposes of present discussion, are all those women who have ever at any time in their reproductive lives made any sort of attempt, however perfect, continuous or adequate on the one hand, or inept, irregular or physiologically stupid on the other hand, to prevent conception from occurring after sexual intercourse.

All the women discussed in this paper were married, had been married only once, and were free of any form of gynecologic disease recognized in the hospitals in

Among the whites, 53 per cent of the New York women were contraceptors (as here defined) as against 64 per cent of the Chicago women. The difference (11 ± 0.8) is probably significant statistically, being nearly fourteen times its probable error. Among the Negroes the corresponding percentages are, as was to be expected, much smaller, being 24 for the New York sample and 47 for the Chicago sample (which however is too small absolutely to be regarded as representative). So far as the whites are concerned, where the samples are large enough to give some confidence in the results the evidence suggests a considerable probability that the attempted practice of birth control is definitely more prevalent in the population of Chicago than in that of New York.³ If a sociological opinion may be ventured, this finding does not seem surprising. On the whole, it is probably a fair generalization that the Middle West is more "advanced" in its attitudes and generally more

TABLE 1.—Number of Women and Average Ages

Items	New York		Chicago	
	White	Negro	White	Negro
1. Total women in sample.....	3,420 (100)	531 (100)	3,451 (100)	335 (100)
a. Primiparas noncontraceptors.....	748 (22)	151 (28)	629 (18)	29 (9)
b. Primiparas contraceptors.....	476 (14)	21 (4)	868 (25)	12 (3)
c. Multiparas noncontraceptors.....	868 (25)	252 (47)	600 (17)	45 (13)
d. Multiparas contraceptors.....	1,328 (39)	107 (20)	1,354 (39)	52 (15)
2. Average age in years of women in sample (totals).....	26.63	24.87	27.10	25.12
a. Primiparas noncontraceptors.....	22.96	21.35	21.35	21.43
b. Primiparas contraceptors.....	23.97	22.64	24.90	21.92
c. Multiparas noncontraceptors.....	28.09	26.13	29.17	26.43
d. Multiparas contraceptors.....	28.70	27.31	28.81	26.79

TABLE 2.—Exposure to Risk of Becoming Pregnant

Items	New York		Chicago	
	White	Negro	White	Negro
3. Total exposure to risk of pregnancy (person-years).....	10,538.4 (100)	1,517.3 (100)	10,333.0 (100)	435.6 (100)
a. Exposure of primiparas noncontraceptors.....	382.8 (4)	104.2 (7)	508.7 (5)	15.1 (3)
b. Exposure of primiparas contraceptors.....	685.2 (7)	33.1 (2)	1,340.1 (13)	17.8 (4)
c. Exposure of multiparas noncontraceptors.....	3,009.1 (29)	939.2 (62)	2,244.3 (22)	175.4 (40)
d. Exposure of multiparas contraceptors.....	6,461.3 (61)	440.8 (29)	6,289.9 (61)	227.3 (52)
4. Average exposure to risk of pregnancy per woman (in years)..... (Totals)	3.08	2.86	3.01	3.16
a. Of primiparas noncontraceptors.....	0.51	0.69	0.81	0.52
b. Of primiparas contraceptors.....	1.44	1.58	1.54	1.48
c. Of multiparas noncontraceptors.....	3.47	3.73	3.74	3.90
d. Of multiparas contraceptors.....	4.86	4.12	4.65	4.37

which they were delivered. So restricting the material obviously enhances its statistical homogeneity and reliability.

The total material in the two samples comprises 7,530 women, of whom 6,871, or 91 per cent, were whites and 669, or 9 per cent, were Negroes. The white samples are almost identical in size in the two cities, but the Negroes are much better represented in the New York than in the Chicago sample. In the New York sample 35.8 per cent of the white women were primiparas, and in the Chicago sample 43.4 per cent. Both these figures represent an excess over the conditions in the United States as a whole. In the United States registration area in 1930 (which included all the states with the exception of South Dakota and Texas) 32.24 per cent of the white women bearing children were primiparas.

The excess of primiparity in the present samples is probably explained chiefly by the fact that these women were all delivered in hospitals. The Negroes in the present samples show smaller percentages of primiparity than the whites, as would be expected a priori.

2. These terms are used because of their common employment, rather than the more precise designations primigravidas and multigravidas, for the categories defined in the brackets. Since the definitions of the categories make the meaning perfectly clear, probably only the pedantic purist, if any one, will be annoyed by the terminology used.

open minded toward relatively new ideas and more receptive to propaganda than the Atlantic seaboard. If this is generally so there is no reason why the attitude toward birth control should be an exception.

In average age the women of the Chicago sample tend on the whole to be a little older than those of the New York sample, but not by amounts great enough to be very significant reproductively. The age differences probably chiefly reflect a little greater postponement of marriage on the average in Chicago than in New York, together with a little lower fertility rate, as will presently appear (the ages in table 1 being average ages at the time of record; i. e., the time of birth of each woman's most recent child).

EXPOSURE TO RISK OF PREGNANCY

In reaching a critically adequate measure of fertility it is necessary to introduce the actuarial concept of exposure to risk of becoming pregnant. In earlier work⁴ the mathematical development and treatment of this concept have been fully discussed. Here it must suffice to say that, as a woman is not exposed to risk

3. It may be stated at this point, although space is lacking to present the detailed evidence in proof, that the New York and Chicago samples of white women are closely similar in respect of social, economic, educational and racial composition.

4. Pearl, Raymond: Factors in Human Fertility and Their Statistical Evaluation, *Lancet* 2: 607-611 (Sept. 9) 1933.

of becoming pregnant when she is already pregnant or in the puerperal state, the figures given in table 2 state essentially the aggregate time in years spent during their married lives by the women in the samples while they were not pregnant or in the puerperium. Table 2 gives the aggregate exposure to risk of the two samples, in person-years, and the average number of years of exposure per woman.

The total exposure to the risk of becoming pregnant of these 7,540 women was 22,874.3 person-years, or an average for the whole lot of three years and eleven days per woman. The multiparas account for the bulk of the exposure. Thus in the New York sample while the white multiparas constituted only 64 per cent of the white women they accounted for 90 per cent of the total exposure. In the Chicago sample of whites 56 per cent of the women were multiparas, but they accounted for 83 per cent of the total exposure to risk of pregnancy. The Negroes show a similar relationship. It depends basically on a fact more clearly seen from the average figures of item 3. Primiparas as a class become preg-

indicated by taking the ratios of the contraceptive to the noncontraceptor means. So doing shows that the delay from marriage to first conception was 2.8 times greater in New York white contraceptors than in noncontraceptors, 2.3 times greater for New York Negroes, 1.9 times greater for Chicago whites, and 2.8 times greater for Chicago Negroes. So far as this criterion may be taken as indicative, the suggestion is that the Chicago white women in the initial portion of their married lives practiced contraception less effectively on the average than did the New York women of corresponding status, although as was shown in table 1 a great many more proportionally of the Chicago than the New York newlyweds tried it.

The average exposures to risk of the multiparas (table 2, items 4c and d) state the number of years of married life spent outside the pregnant and puerperal states. These averages are higher, class for class, in the contraceptive groups than in the noncontraceptor groups, as would be expected if the attempts at birth controlling had any practical effect at all. The relative effective-

TABLE 3.—*Pregnancy and Live Birth Rates per Hundred Years' Exposure to Risk of Pregnancy*

Items	New York		Chicago	
	White	Negro	White	Negro
5. Pregnancies experienced per hundred years of exposure to risk (totals).....	84.6	99.0	70.7	99.9
a. By primiparas noncontraceptors.....	195.4	144.9	123.6	102.1
b. By primiparas contraceptors.....	69.5	63.4	64.8	67.4
c. By multiparas noncontraceptors.....	109.4	94.2	84.2	103.2
d. By multiparas contraceptors.....	68.0	101.0	62.8	93.7
6. Live births produced per hundred years exposure to risk (totals)...	73.3	86.0	63.0	84.0
a. By primiparas noncontraceptors.....	188.6	136.3	120.9	102.1
b. By primiparas contraceptors.....	68.0	60.4	64.2	67.4
c. By multiparas noncontraceptors.....	92.0	80.7	73.1	83.8
d. By multiparas contraceptors.....	58.4	87.3	54.4	78.3
7. Effectiveness of contraception as practiced in lowering pregnancies experienced				
a. By primiparas (percentage lowering of rate).....	64.4	56.2	47.6	64.9
b. By multiparas (percentage lowering of rate).....	37.8	— 7.2 *	25.4	9.2
8. Effectiveness of contraception as practiced in lowering live births produced				
a. By primiparas (percentage lowering of rate).....	63.9	55.7	46.9	64.9
b. By multiparas (percentage lowering of rate).....	36.5	— 8.2 *	25.6	6.6

* Meaning that in this class of women contraception was not effective at all in lowering either pregnancy or live birth rates, since these rates were higher, by the stated percentages, in contraceptors than in noncontraceptors.

nant with much less prolonged exposure to risk than do multiparas.

In the case of the primiparas the figures under item 4 give the average lengths of time in years, for the several groups, between marriage and first conception (beginning of first pregnancy). Thus, to take New York white primiparas noncontraceptors as an example, the figure 0.51 means that on the average these women spent only a little over six months after marriage before they were pregnant. The Chicago women in the same category exhibit an average delay between marriage and first pregnancy over three months longer (9.72 months exactly). This is the first indication of the generally slightly lower apparent innate fertility exhibited by the Chicago as compared with the New York samples, both white and Negro. As we proceed, more evidence supporting this inference will appear.

From item 4 there also appears the first indication as to the effectiveness of contraception. If the primiparas contraceptors averages of item 4b are compared with those of primiparas noncontraceptors (item 4a) it is evident that the practice of contraception has substantially increased the time interval between marriage and first conception, as it was intended and would be expected to do. This is true for all groups, white and Negro, New York and Chicago. The relative effectiveness of the contraception, as practiced, may be simply

ness can be simply indicated by the same device that was used for the primiparas. So doing, it appears that the New York multiparas contraceptors enjoyed 1.4 times as many years of married life free from pregnancy as did the noncontraceptors; for the New York Negroes the figure is 1.1 times, for the Chicago whites 1.2 times, and for the Chicago Negroes 1.1 times. These figures confirm, so far as they go, two well established points: that contraception is less effectively practiced by multiparas than by primiparas, and by Negroes than by whites. Comparing the New York and Chicago white samples, the suggestion again is that the attempts of Chicago multiparas at contraception were less effective than those of the New York multiparas, though proportionally more of the Chicagoans tried it.

FERTILITY AND CONTRACEPTION

In table 3 are given the number of pregnancies experienced and live births produced per hundred years of exposure to risk of pregnancy in the several classes, and also the percentage effectiveness of contraception, as practiced, in lowering the pregnancy and live birth rates.

At this point it will be well to state categorically that here and elsewhere in this paper the discussion has to do with the effectiveness of the total contraceptive efforts of defined groups of persons in the sense only of lowering pregnancy or birth rates, or prolonging the

portion of married life spent free of pregnancy, when these groups are compared with similar groups in which there was no contraceptive effort whatever. The data here discussed have no bearing whatever on the question of whether birth control gadget A is better or worse than gadget B, or the degree to which either is biologically effective in reality. The discussion concerns only the comparative reproductive performance of defined groups of women, of which groups some have attempted to alter the expression of fertility by resort to contraceptive technics, whereas the other groups have made no such attempt.

In beginning the discussion of table 3 it will be well first to explain an apparent paradox in the figures. To one not accustomed to handling this sort of material and not familiar with the mathematical treatment to which it has been subjected, it may seem odd at first glance to see that 195.4 pregnancies and especially 188.6 live births resulted from each hundred years of exposure to risk of pregnancies among New York white primiparas noncontraceptors, to take them as an example. This however is physiologically all right, odd as it seems. It merely means that the time between marriage and conception was under six months in well over half the cases. If it had been exactly six months

percentage lowering in contraceptive as compared with noncontraceptor classes is less in the Chicago sample than in the New York sample by 17.0 ± 1.3 per cent for primiparas and by 10.9 ± 1.0 per cent for multiparas. Among the multiparas the Negroes evidently practice their contraception much less effectively than the whites, but among the primiparas the racial differences are not so marked.

REPRODUCTIVE WASTAGE

Pregnancies that terminate in miscarriages, abortions or stillbirths—in short, in any other way than by live births—represent reproductive wastage. The organism has been put to physiologic trouble to no useful end. The extent of this wastage quantitatively is shown in table 4. In this table the reproductive wastage rates per hundred pregnancies experienced as given in item 10 are obtained by subtracting each figure of item 9 from 100.

Among the white women the reproductive wastage rates are somewhat lower in the Chicago than in the New York sample. So far as concerns the total group they are significantly lower. This is possibly connected with the greater prevalence of contraceptive efforts among Chicago women. Reproductive wastage rates in

TABLE 4.—Reproductive Wastage

Items	New York		Chicago	
	White	Negro	White	Negro
9. Live births produced per hundred pregnancies experienced (totals)...				
a. By primiparas noncontraceptors.....	86.7	86.9	89.1	84.1
b. By primiparas contraceptors.....	96.5	94.0	97.8	100
c. By multiparas noncontraceptors.....	97.9	95.2	99.1	100
d. By multiparas contraceptors.....	84.0	85.6	86.8	81.2
	85.8	86.5	86.6	82.6
10. Reproductive wastage per hundred pregnancies experienced (totals)				
a. Among primiparas noncontraceptors.....	13.3	13.1	10.9	15.9
b. Among primiparas contraceptors.....	3.5	6.0	2.2	0
c. Among multiparas noncontraceptors.....	2.1	4.8	.9	0
d. Among multiparas contraceptors.....	16.0	14.4	13.2	18.8
	14.2	13.5	13.4	16.4

in all the cases, the figure 195.4 would have been exactly 200. A similar situation, *mutatis mutandis*, exists in all other cases in which the rates in the table are greater than 100. The intervals (in years) of freedom from pregnancy (and the puerperal state) were in each case numerically less than the pregnancies or live births experienced.

From table 3 the following inferences seem reasonable: First, the white women of the Chicago sample, in whatever class, exhibited lower fertility rates than the corresponding New York women whether measured by pregnancies or live births or whether with or without contraception. The difference between the New York and Chicago samples as wholes in respect of pregnancy rates (13.9 ± 0.7) may be regarded as very probably significant statistically, being almost twenty times its probable error. In the second place it appears that in the New York sample the Negroes, in each class except the multiparas contraceptors, exhibit somewhat lower fertility rates than the whites, while the opposite appears to be true in the Chicago sample. But, as has already been pointed out, the Chicago Negro sample is too small to give results of any firm reliability. Furthermore, it is doubtful that the New York white-Negro differences would be confirmed in larger samples.

Turning now to items 7 and 8, the suggestion again is that the Chicago white women were less effective contraceptors than the New York white women, class for class. The differences in the percentages measuring effectiveness of contraception (items 7 and 8) are statistically significant to a high degree of probability. Thus considering the live birth rates (item 8) the per-

both cities are much higher in multiparas than in primiparas. This result accords with all experience regarding the subject. The wastage rate rises with parity.

Although the samples are not large enough to be completely probative, the figures bring out an interesting point to which attention has not hitherto been called. There is an apparent tendency, with the Chicago white multiparas forming the only exception, for the reproductive wastage rates to be lower among the contraceptors than among the corresponding classes of noncontraceptors. The entire material at our disposal will be analyzed relative to this point as soon as possible, because it is a matter of considerable interest especially in relation to the controversy that has gone on for years as to whether birth control is physiologically harmful to the female reproductive mechanisms.

INDUCED ABORTIONS

The reproductive wastage figures of table 4 indicate the totals of all such wastage. Because of the fact that deliberately induced abortion is resorted to by many a harassed female as an adjunct to, or surrogate for, contraceptive efforts, it is desirable to examine separately the rates for abortions admittedly induced by the woman herself or by some other person acting criminally with her consent to relieve her of her difficulty. It is to be understood that abortions ethically induced for therapeutic reasons by reputable physicians are not included in the figures of table 5. They include only wilful termination of unwanted pregnancies.

The implications of table 5 are thought provoking. The 1,328 New York white multiparas contraceptors

admit that one in every twenty-four pregnancies they have experienced in their aggregate reproductive lives has been terminated by a successful criminal abortion; furthermore, on their own admission, roughly one in every eight of them has had at least one induced abortion; and finally they admit that approximately 30 per cent of the aggregate reproductive wastage they have experienced has been due solely to criminal abortions induced by themselves or by somebody else. It is probable that the admitted figures are short of the whole truth, though by how much it is impossible to say. Current statements in popular lay journals about the frequency of criminal abortion in the general population considerably exaggerate any conclusion that can be supported by critical scientific evidence. It is true, as indeed our unpublished records show, that a great many women attempt to induce abortions but fail. A careful critical study of individual records leads me to the opinion that the figures of table 5 are not greatly below the unknown reality, and certainly not as much below as some would have us believe.

While the New York multiparas contraceptors have been discussed first as an example, the picture presented

3. At the same time contributing substantially through the direct and indirect taxes they, as families, pay to the support of an intensive and statistically highly successful public health program of keeping babies alive and in good health.

Such a picture tallies badly with our national pride in being a socially enlightened, intelligent and progressive people.

Perhaps the most interesting thing that table 5 shows—a point that so far as I am aware has not hitherto been supported by numerical evidence as distinguished from a priori opinion—is that resort to wilfully induced abortion is much more common among women who practice birth control than it is among women who do not, so far as may be judged by the evidence afforded by these two samples. There is reason to believe, and it is expected that later in another place it will be demonstrated, that New York and Chicago are in no wise peculiar in this respect but that our total material will show the same thing. The result is one to be expected on the lower levels of behavioristic psychology. The abortionist is called on to rectify the inadequacies of birth control.

TABLE 5.—*Induced Abortions (Self or Criminal)*

Items	New York		Chicago	
	White	Negro	White	Negro
11. Induced abortions (self or criminal) per hundred pregnancies experienced (totals).....	2.8	0.9	1.6	0.9
a. Among primiparas noncontraceptors.....	0.3	0	0.3	0
b. Among primiparas contraceptors.....	0.4	0	0	0
c. Among multiparas noncontraceptors.....	1.8	0.3	0.7	2.2
d. Among multiparas contraceptors.....	4.2	2.2	2.7	0
12. Percentage of total reproductive wastage due to induced abortions	21.0	6.6	15.1	5.8
a. Among primiparas noncontraceptors.....	7.7	0	14.3	0
b. Among primiparas contraceptors.....	20.0	0	0	0
c. Among multiparas noncontraceptors.....	11.4	2.4	5.2	11.8
d. Among multiparas contraceptors.....	29.7	16.7	20.0	0
13. Induced abortions per hundred women at risk.....	7.3	2.4	3.5	2.9
a. Among primiparas noncontraceptors.....	0.3	0	0.3	0
b. Among primiparas contraceptors.....	0.4	0	0	0
c. Among multiparas noncontraceptors.....	6.9	1.2	2.2	8.9
d. Among multiparas contraceptors.....	13.9	9.3	7.8	0

by table 5 as a whole is not exactly a pleasant one from any point of view. Remember that the table contains only women living in wedlock who have been married only once, and are free of gynecologic disease—in other words, generally not people of loose morals. These are records of families, living together and rearing children, on the whole representative of the most substantial sort of the traditionally typical American family at each social and economic level represented in the data, from “very poor” through “well-to-do and rich.” The figures as to purposefully induced abortion are not estimates or wild exaggerations based on emotional opinions. On the contrary they are records of actual happenings, which admittedly probably somewhat understate the complete facts but can therefore be accepted with greater confidence as establishing minimal values, below which the truth cannot lie.

What emerges is that, in our two largest cities, samples of white child-bearing women that are known to be fairly representative of the population (cf. evidence in Third Progress Report cited earlier) from which they come are exhibiting the following kind of behavior:

1. Deliberately causing from one sixth to more than one fifth of their aggregate reproductive wastage.

2. By so doing voluntarily taking one of the most serious risks to their very lives as well as to their future health and well being that a woman can take short of suicide or major self mutilation.

So far as the present sample may be taken as indicative, the suggestion is that the Chicago white women resort somewhat less to induced abortion than the New York women. Larger samples would be necessary to be quite sure about this, but the suggested trend is probably real. The induced abortion rate tends to be lower among the Negroes than among the whites, as is clearly shown by the New York figures.

SUMMARY

Certain aspects of the reproductive histories of 3,951 women dwelling in New York City and 3,589 dwelling in Chicago were analyzed and compared. All the women in both samples were living in wedlock, had been married only once, and were free of any recognized form of gynecologic disease. The age distribution of the women was substantially similar in the two samples, with somewhat greater average ages in the various subgroups of the Chicago sample, but not sufficiently so to affect any result.

1. The white women of the Chicago sample appear to be somewhat less fertile on the average as a group than the white women of the New York sample, whether measured by pregnancies experienced or live births produced.

2. Attempted contraception was more frequent among the Chicago than among the New York white women, the percentage of contraceptors being 64 in the former city and 53 in the latter.

pen, hurries to the window and pulls the window shade, utters some comment, then mounts the scale and is off again.

Once this inhibiting function is acquired, it may be diminished or destroyed by certain major damage to the brain. The outstanding disease process that affects this function is encephalitis. It is well known⁴ that children who have suffered from lethargic encephalitis present behavior disorders, often characterized by distractibility and hyperkinesis. Recently a similar clinical picture has been drawn for children who have sustained severe cranial trauma. Blau⁵ reported cases of children who have suffered cranial trauma who developed this same restless, purposeless hyperactivity.

The behavior of our patient is quite similar to the manifestation of certain retarded individuals and of those who have suffered encephalitis or brain trauma. At first meeting he appears vivacious, lively and talkative. When studied critically, one is impressed by his hypermotility, by his rapid change from one subject to another. At times the rapid change from subject to subject matter in his speech resembles the flight of ideas so common among manic patients. His hyperkinetic tendency shows itself in his leaping to the bed and then off to gaze through the window, back to finger the doctor's tie, and so forth.

The behavior difficulty at home arises from the clash between the uncontrollable hyperkinetic tendency and the unsuccessful efforts of teachers and parents to regulate it. When Clarence was commanded by his teacher to study for an hour and gave his "promise" to do so, he was able to maintain interest only for several minutes. Then he began to inspect the cover of the book, open and close the desk, gaze at the clothes of the other pupils, the way their hair was combed; then his gaze would be directed to the windows, the sky, the song of the birds. At the end of the hour he knew very little of the contents of the chapter he was supposed to read. The teacher upbraided him and the next day he did not appear at school. At home there was similar friction. He was given duties which he failed to perform. When reprimanded he would reply by lying, cursing and fighting. The patient can be well understood in the light of Bond and Appel's report⁴ that such hyperkinetic children do better when removed from the usual restraint of parents and teachers. Obviously the attempt to curb the irresistible impulses would prove unsuccessful.

One may wonder why a hyperkinetic disorder occurs in youth and not in adults. With traumatic damage in older persons we have frequently seen depressed states or paranoid reactions. It seems as though in youth and childhood interest and attention are often directed outward. This "extroverted" tendency arises out of a child's eagerness to learn. Such curiosity may not be primary; it may be aroused by the novelty, the strangeness, the unusualness of every situation. A like curiosity appears in an adult traveling for the first time amid new surroundings. For example, we recently drove in New York City with a companion who was there for the first time. His reaction to the environment was similar to that of Clarence's continuous hyperkinetic distractibility. He looked downward to

hear the roar of the subway, up at the elevated trains. He strained his neck to see the tall buildings. He was surprised at the large crowds on Fifth Avenue. He made comments and exclamations. The other members of the party, who had been in New York on several occasions, looked about, half bored, and more concerned with the visceral feelings of hunger.

As a youngster and adult are walking along the street, apparently looking at the same scenery, there may be a fundamental difference in the pathway of the major mental interest. The child looks out intently, notes keenly, observing and recording in his memory, reacting with exclamations and numerous questions. The adult (if not on a scientific journey of observation) likewise looks out, but as he notes these familiar surroundings his mind wanders inwardly to memories which are recalled and to internal problems and complications. Though looking outward at what might be glorious scenery, he may heave a deep sigh because of an internal sadness or may chuckle because he recalls a witticism he heard the night before.

When the cortex has been damaged by a virus, mechanical or vascular change, the impairment affects the most difficult function. In the youngster this consists of reducing distractibility and increasing concentration. A loss in cortical function reduces this progress and accentuates the distractibility. In older individuals, a similar loss of cortical control might reduce the ability to look outward, to study reality. Thoughts are more quickly introverted; the outer environment is less readily understood. In the face of physical difficulties and a misunderstood environment there is a tendency toward worry and suspicion, all of which leads to a depressed or paranoid reaction.

Blau⁵ postulates the theory that this hyperkinetic syndrome might be due to frontal lobe damage. This is a possibility in our case because there are no localizing signs.

Aside from the organic brain change, one must consider the influence of several other factors: the scars in the scalp and the defect in the skull bone, together with the fear of possible further brain damage. We do not consider this an important factor, because Clarence does not manifest anxiety or depression. One must consider also the possible effect of the scarred and deformed hand and various scars on the body. Clarence, however, minimizes these difficulties. His story does not consist of a shyness or backwardness produced by these deformities. The major disorder is therefore to be interpreted in the light of the cortical brain change and not in that of the surface scars and deformities.

It appears as though a similar behavior disorder may result from brain trauma, whether it is produced by electricity, direct mechanical violence or infection. The age of the patient is the more important factor in the type of the manifestation.

CONCLUSION

An apparently well adjusted, normal youngster, after he sustained a serious brain damage from electricity, developed a profound behavior disorder, characterized largely by hyperkinetic tendencies. Apparently a like picture may result from a brain lesion in youth, whether the lesion arises from virus, mechanical or electrical injury.

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4. Bond, E. A., and Appel, K. E.: *The Treatment of Behavior Disorders Following Encephalitis: An Experiment in Reeducation*, the Commonwealth Fund Division of Publications, New York, 1931.
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EXCESSIVELY RAPID HEART RATES

REPORT OF A CASE WITH AUTOPSY

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The ventricles of the human heart have rarely been observed to pulsate at a rate approaching 300 per minute. Only sixteen cases in which there was a ventricular rate of 280 or over were found in the literature (table 1). In ten of these the rate was confirmed by graphic tracing; in the remaining six the count was by stethoscope only. A ventricular rate of 300 beats per minute was recorded electrocardiographically in four cases. In no case was an electrocardiogram published showing a rate that exceeded 300 per minute. Werley¹ published a polygram presenting a ventricular rate of 307. Blackford and Willis² stated that a patient having auricular flutter with a two-to-one block entered their office during a paroxysm of one-to-one response which lasted nearly two hours. A heart rate of 320 was counted by means of the stethoscope. Later during the attack an electrocardiogram was taken which showed a rate of 300 beats per minute. Duken³ reported that in the case of an infant whose heart rate was 300 by stethoscopic count an electrocardiogram showed a rate of what appeared to be 320 beats per minute but that the tracing was not distinct enough to differentiate the complexes definitely. He did not publish the electrocardiogram. These three are the only reported rates above 300.

It seems probable from this review that the upper limit at which the ventricles of the human heart can maintain their rate of pulsation is approximately 300 per minute. Lewis and his associates⁴ found that when in animal experiments the auricles of the mammalian heart were stimulated to rates surpassing 300 per minute the ventricles beat at a slower rate. The auriculo-ventricular node, because of the greater length of its refractory period, failed to transmit each stimulus to the ventricles and dropped beats or two-to-one rhythm occurred. Two-to-one response to stimuli appeared in the auricular muscle at rates of approximately 450 per minute, in the auriculoventricular node at rates approaching 300 per minute, and in the ventricular muscle at an intermediate rate.

In the following case a ventricular rate of from 310 to 313 beats per minute was recorded electrocardiographically. This rapid rate occurred during an attack of streptococcal meningitis in an infant 4½ weeks of age. When the patient came to autopsy three weeks later the heart was found to be grossly normal. A microscopic examination of tissue showed no evidences of infection or fibrosis of the heart muscle. The electrocardiogram, in addition to presenting a rate faster than any so far recorded in the literature, presents an interesting problem of interpretation (fig. 1).

REPORT OF CASE

A colored female child, born Jan. 16, 1934, was admitted to the Children's Hospital February 15, thirty-one days after birth,

Dr. P. A. McLendon of Washington furnished the opportunity of observing this case. Dr. E. C. Rice made the postmortem report. Dr. R. M. Choiser made the microscopic study of tissue and Dr. Paul D. White contributed valuable suggestions to the reporting of the case.

1. Werley, Gottlieb: Paroxysmal Tachycardia, with Ventricular Rate of 307, in a Child Four Days Old, *Arch. Pediat.* 42: 825-826 (Dec.) 1925.

2. Blackford, John M., and Willis, F. A.: Auricular Flutter, *Arch. Int. Med.* 21: 147-165 (Jan.) 1918.

3. Duken, J.: Ueber eine typische Form der paroxysmalen Tachycardie im Säuglingsalter, *Arch. f. Kinderh.* 99: 65-72 (April 28) 1933.

4. Lewis, Thomas: The Law of Cardiac Muscle, with Special Reference to Conduction in the Mammalian Heart, *Quart. J. Med.* 14: 339-351 (July) 1921. Lewis, Thomas; Drury, A. N., and Iliescu, C. C.: Some Observations upon Atropine and Strophanthin, *Heart* 9: 21-53 (Dec.) 1921.

because of difficulty in breathing, rapid heart action and attacks of vomiting. The infant had been normal at birth and had weighed 7 pounds 8 ounces (3.4 Kg.). The mother's health was good and she had a normal pregnancy and delivery. The infant was breast fed and at the time of her admission weighed 9 pounds 2 ounces (4.1 Kg.). The mother stated that the child had apparently been well until 3 o'clock the morning of the 15th, when she noticed that it was breathing with difficulty. This condition remain unchanged. Beginning at 6 o'clock the child had several attacks of vomiting and later on during the morning it passed a small amount of blood by rectum.

On admission the temperature was 99 F. and the respirations were 40 per minute and irregular. The heart rate was too rapid to count accurately, but it was estimated to be over 300 beats per minute. The heart was not enlarged. A faint systolic murmur was heard intermittently in the mitral area. The lungs were clear. The abdomen was distended. The liver and spleen were not palpable.

On February 17 the hemoglobin was 55 per cent, the red cell count 3,200,000 and the white cell count 9,500, of which 37 per cent were lymphocytes and 63 per cent polymorphonuclears. An examination of the urine was essentially negative. February 19, the fourth day following the onset of the rapid rate, an electrocardiogram demonstrated an auriculoventricular rate of 310 beats per minute in leads 1 and 2 and 313 per minute in lead 3 (fig. 1). A teleroentgenogram taken February 23 showed slight enlargement of the heart (fig. 2). A diagnosis of paroxysmal tachycardia was made by one of the house physicians.

On the day following admission the ventricular rate varied between 150 and 300 beats per minute. During the subsequent ten days the heart was occasionally observed to be beating at approximately 300 beats per minute, although it more often ranged between 130 and 180, with the radial and temporal pulses coinciding. During the remaining ten days of the infant's life the heart rate ranged from 130 to 180. An electrocardiogram taken March 2 demonstrated an auriculoventricular rate of 130 beats. Otherwise the electrocardiogram was normal (fig. 3).

The patient continued to have an elevated, fluctuating temperature ranging from 99 to 105.2 F. She steadily lost weight. February 27 the hemoglobin was 72 per cent, the red cell count 4,300,000 and the white cell count 16,800, of which 27 per cent were lymphocytes and 73 per cent polymorphonuclears. March 3 a catheterized specimen of urine showed a few white blood cells, occasional red blood cells and a few hyaline casts. March 6, considerable swelling developed over the left upper part of the chest and about the base of the neck on the left side extending out to the point of the shoulder. A roentgenogram taken on the same date demonstrated a fusiform swelling in the middle third of the left clavicle, the upper border of which was slightly irregular. The blood count at this time showed the hemoglobin to be 57 per cent, the red cell count 3,000,000 and the white cell count 25,000, of which 14 per cent were lymphocytes and 85 per cent were polymorphonuclears. On the following day the patient developed erysipelas involving the left side of the neck and the left shoulder. March 8, the twenty-first day after admission to the hospital, the patient died.

At autopsy the meninges were found to be injected and to show a grayish exudate, which covered the surface of the brain. The heart was normal in size and appearance. The musculature was firm. The foramen ovale and ductus arteriosus were closed. The right pleural cavity contained about 15 cc. of yellow blood-tinged fluid. The right lung was of a deep grayish purple, with evidence of atelectasis. In the lower lobe an irregular reddish gray area, approximately 2 cm. in diameter, extended internally about 1 cm. and had the appearance of an infarct. On section this area was found to be superficial and not consolidated. The left lung was moderately congested. The liver was enlarged 3 cm. below the costal margin in the right midclavicular line. On section it was grayer than usual, possibly because of toxemia. The kidneys, spleen and adrenals showed evidences of passive congestion. Microscopic examination of tissue showed that in the meninges the pia-arachnoid was thickened and that there was an infiltration of leukocytes, round cells predominating, with some polymorphonuclears. Some disintegrating material was also present. The underlying substance was edematous. The muscle fibers of the heart appeared to be separated more than usual, possibly because of edema. No evidence of inflammatory reaction was

noted. The alveoli of the lungs contained a large amount of albuminous fluid. Atelectasis was marked in some sections. In the tissues of the liver there were evidences of chronic passive congestion with collections of leukocytes and proliferation and infiltration of connective tissue cells. The appearance of many of the hepatic cells was suggestive of toxic degeneration. The follicles of the spleen were much compressed by an increased amount of red blood cells. The reticulum was prominent. Collections of brownish pigment were found throughout

nerve fibers or of nerve cells in any portion of this section. In some areas there was a very mild fragmentation of the muscle fibers. The papillary muscle was well developed. A section through the heart at the upper portion of the septum close to the atrioventricular junction revealed several groups of sympathetic nerve cells located beneath the endocardium. These cells were large, being six times the diameter of a red blood cell, and they had a faintly basophilic cytoplasm and two or three protoplasmic processes extending from each cell body.

TABLE 1.—Summary of Reported Cases of Excessively Rapid Heart Rates

Number	Author and Date	Sex, Color, Age	Associated Diseases	Arrhythmia	Attacks, Duration and Number	Ventricular Rate	Graphic Tracing	Symptoms Produced by Rapid Heart Action	Outcome	Necropsy
1	Mackenzie, 1911, 1915	♂ W 47 yrs.	Mild typhoid prior to onset	Auricular flutter with 1 to 1 response	30 to 60 minutes, several attacks	290-300	Phelebogram	Prostration and weakness	Resumption of normal rate	
2	Lewis, 1915	? W 3 mos.	Not stated	Auricular flutter with 1 to 1 response	"Several hours"	270-290	Electrocardiogram	None present	Not stated	
3	Koplik, 1917	♂ W 22 mos.	"Grip" prior to onset	Paroxysmal auricular tachycardia	"A few days," several shorter attacks	224-288	None at 250 or over	Cyanosis, dyspnea, passive congestion during first attack	Resumption of normal rate	
4	Blackford and Willis, 1918	♀ W 32 yrs.	Exophthalmic goiter	Auricular flutter with 1 to 1 response	"Nearly 2 hours," many attacks	300	Electrocardiogram	None present	Resumption of normal rate following thyroidectomy	
5	O'Flynn, 1925	♀ W 8 mos.	Diagnosis undetermined; "intestinal irritation"	Paroxysmal auricular tachycardia	8 days, 2d attack lasting 24 hours	200-300	None	At times cyanosis, passive congestion	Resumption of normal rate	
6	Werley, 1925	♂ W 4 days	Diagnosis undetermined	Paroxysmal auricular tachycardia	Several hours, 2 attacks	300-307	Polygram	Cyanosis	Death, 3d day after onset	Widely patent foramen ovale, congestion of cardiac vessels
7	Sachs, 1926	♂ W 3 yrs.	Heart disease	Paroxysmal auricular tachycardia	Several hours, 3 attacks	280	Electrocardiogram	Cyanosis and dyspnea	Death 1 year after onset	Myocarditis, dilatation, hypertrophy
8	Colgate and McCulloch, 1929	♂ C 3½ wks.	None present	Paroxysmal auricular tachycardia	2 hours or more	291	Electrocardiogram	Dyspnea, enlargement of liver	Resumption of normal rate	
9	Russell and Ellison, 1927	♀ W 15 mos.	"Congenital heart disease"	Paroxysmal auricular tachycardia	5 days, 2d attack 3 days, rate 240	290-300	Polygram	At times cyanosis and restlessness	Resumption of normal rate	
10	Herapath, 1928	♂ W 17 yrs.	Influenza prior to onset	Auricular flutter with 1 to 1 response	Many brief attacks following exertion	288	None	Dyspnea	Resumption of normal rate	
11	Langley, 1928	♂ W 14 yrs.	None present	Paroxysmal auricular tachycardia	A few brief attacks	300	Electrocardiogram	None present	Resumption of normal rate	
12	de Bruin, 1930	♂ W 5 wks.	"Probable encephalitis"	Paroxysmal auricular tachycardia	Duration not stated, several attacks	250-250	None	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
13	Duken, 1933	♀ W 8 wks.	Diagnosis undetermined, "bloody vomitus and stools"	Paroxysmal auricular tachycardia	3 days, 2 shorter attacks	200-300	None	Cyanosis, passive congestion, one attack of syncope	Resumption of normal rate	
14	Bunn, 1933	♂ W 50 yrs.	Exophthalmic goiter	Paroxysmal ventricular tachycardia	5 hours, single attack	300	Electrocardiogram	Collapse, weak pulse, pulmonary edema	Resumption of normal rate	
15	Farr and Wegman, 1935	♂ W 3½ wks.	None present	Paroxysmal auricular tachycardia	10 hours, 6 attacks over 8½ months	300	Electrocardiogram	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
16	Clarke, 1935	♂ W 1 wk.	None present	Paroxysmal auricular tachycardia	51 hours, several attacks for 5 days	300	None	Cyanosis, dyspnea, passive congestion	Resumption of normal rate	
17	Lyon, 1937	♀ C 4½ wks.	Streptococcal meningitis	Auricular flutter with 1 to 1 response	Additional Case 10 hours, several attacks for 10 days	310-313	Electrocardiogram	Dyspnea	Death, 3 weeks after onset	Heart, normal

the sections of the spleen. The tubular epithelium of the kidneys was poorly staining and much swollen, representing evidence of the toxic effect on the organ. An anatomic diagnosis was made of (1) purulent meningitis, (2) empyema, right, (3) bronchopneumonia and atelectasis, (4) subacute hepatitis and (5) erysipelas.

A microscopic study of tissue taken from the interventricular septum showed cardiac muscle fibers which were small, thin and closely approximated to one another, with round nuclei which took a pale basophilic stain. The endocardium was smooth, unbroken, and lined by an endothelium and a basement membrane of areolar connective tissue. The capillaries in this tissue were abundant, moderately dilated, and congested with red cells of the nonnucleated variety. There were no evidences of

The cytoplasm was clear. Under high power, numerous small granules were visible. The nucleus was markedly hyperchromatic and of an even texture throughout. None of its finer markings could be made out. A few small nerve bundles could be traced for a short distance down beneath the endocardium. A section through the right auricle and ventricle, taken in the longitudinal axis on the anterior surface, revealed moderate fragmentation and segmentation of the muscle fibers and considerable dilatation and congestion of the capillaries. The nuclei of the muscle fibers in this section were larger and slightly paler staining than were those in the sections taken from the septum. There was no evidence of nerve tissue in this particular section. A section taken through the right auricle just beneath and to the left of the inferior vena caval

orifice revealed three small sympathetic ganglions immediately beneath the endocardium. The cells in two of these ganglions were about six times the diameter of a red blood cell and they had a slightly basophilic cytoplasm with a round, mildly hyperchromatic nucleus. Two or three small dendritic processes extended from each cell body. In the third ganglion the cells were fainter, paler staining and appeared to have undergone some mild change. The vessels in this section were mildly congested. The heart muscle fibers were fairly well developed. There was no fibrosis seen in any section.

SUMMARY

A colored female infant, 4½ weeks of age, had an attack of rapid heart action lasting more than ten hours, during which time the ventricular rate was approximately 300 beats per minute. Similar attacks of shorter duration occurred during the first ten days that the child was under observation. During the intervals between attacks the heart rate varied from 130 to 180. On the fourth day following the onset of the rapid rate an electrocardiogram showed a ventricular rate of from 310 to 313 beats per minute (fig. 1). Following the cessation of the attacks the heart maintained a rate of from 130 to 180 for the remaining ten days of life. Three weeks after the onset of the initial attack the infant died of streptococcic meningitis. An autopsy showed a grossly normal heart. Microscopically there was no evidence of infection or fibrosis, the only changes being terminal ones.

COMMENT

Sixteen cases of excessively rapid heart rates have been collected from the literature. These, together with the additional case that is being reported, are summarized in table 1. Only cases showing a rate of 280 beats per minute or over were included in the series.

TABLE 2.—Summary of Sex and Age Incidence

	Sex			Age			
	Male	Female	Not Stated	Under 2 Years	2 to 10 Years	10 to 20 Years	Over 20 Years
Number of patients	11	5	1	11	1	2	3

Cases⁵ in which the rate was described as "uncountable" or "too rapid to count," without an attempt to estimate the number of pulsations per minute, were omitted. Very rapid oscillations, as high as 1,000 per minute, have been recorded electrocardiographically in ventricular fibrillation.⁶ Cases of ventricular fibrillation, however, were omitted because of the transitory nature of the arrhythmia and the absence of ventricular pulsations during an attack. Cases⁷ of ventricular tachycardia in which the tachycardia was momentary and merely preliminary to, or terminating, an attack of ventricular fibrillation were also omitted. The criteria that were used to distinguish ventricular tachycardia from fibrillation were the persistence of heart sounds and pulse activity. Only one case of ventricular tachycardia with a rate approaching 300 was found to conform to these criteria.⁸

In this series of seventeen cases, the rapid heart rate occurred more frequently in males than in females in

the ratio of eleven to five, the sex of one patient not being stated (table 2). Two patients, both infants, were colored. The series is preponderantly one of infancy, eleven of the seventeen patients being under 24 months of age. Werley's¹ patient, in whom the onset of tachycardia occurred during the fourth day of life, was the youngest of the group. In Clarke's⁹ case an attack of tachycardia had its onset on the seventh day of life and persisted uninterruptedly for fifty-one hours. The longest duration of an attack was eight days, in an infant 2 months of age, reported by

TABLE 3.—Summary of Incidence of Associated Diseases

Age Groups	Associated Diseases					
	Not Stated	None Present	Diagnosis Undetermined	Infectious Diseases	Heart Disease	Exophthalmic Goiter
Under 2 years	1	3	3	3	1	0
2 to 10 years	..	..	..	0	1	0
10 to 20 years	..	1	..	1	0	0
Over 20 years	..	..	..	1	0	2

O'Flynn.¹⁰ The attacks of rapid heart action in the adult group were of comparatively short duration, five hours in Bunn's⁸ case and two hours in Blackford and Williams's² case. Mackenzie's¹¹ and Herapath's¹² patients had brief attacks of one-to-one response in auricular flutter, which usually presented a two-to-one block.

The diseases that were associated with the rapid heart action in the infant group show considerable divergence from those of the adult group (table 3). Three infants presented no symptoms at the onset or during the course of their attacks except those that were clearly produced by the arrhythmia itself. Three infants had an associated disease which was not diagnosed. In three cases in the infant group there was an infectious disease present prior to or during the onset of the rapid rate, in Koplik's¹³ case "grip," in de Bruin's¹⁴ case "probable encephalitis," and in the case being reported streptococcic meningitis proved at autopsy. In two cases in the adult group, infectious diseases in the form of typhoid and influenza had occurred prior to the onset of auricular flutter with two-to-one and three-

TABLE 4.—Summary of Incidence of Cardiac Arrhythmias

Age Groups	Types of Arrhythmias		
	Paroxysmal Auricular Tachycardia	Auricular Flutter with 1 to 1 Response	Paroxysmal Ventricular Tachycardia
Under 2 years	9	2	0
2 to 10 years	1	0	0
10 to 20 years	1	1	0
Over 20 years	0	2	1

to-one block. In these two cases the paroxysms of one-to-one response were produced by exertion. No symptoms of an associated disease were present in the case reported by Langley.¹⁵ The remaining two adults had exophthalmic goiter. One of these, reported by

5. Schuster, Norah H., and Paterson, Donald: Specimen from a Case of Paroxysmal Tachycardia in an Infant, Aged 9 Weeks. *Proc. Roy. Soc. Med.*, 17: 11 (Nov. 23) 1923. Blue, W. R.: A Case of Paroxysmal Tachycardia in a Baby Two Months Old. *Memphis M. J.* 3: 74-75 (March) 1926.

6. Kerr, W. G., and Bender, W. L.: Paroxysmal Ventricular Fibrillation with Cardiac Recovery in a Case of Auricular Fibrillation and Complete Heart Block While Under Quinidine Sulfate Therapy. *Heart* 9: 269-279 (Dec.) 1921. Schuster, Norah H.: Persistent Ventricular Fibrillation: A Study of t. Syncope Attacks. *Arch. Int. Med.* 49: 282-302 (Feb.) 1932.

7. Dock, William: Transitory Ventricular Fibrillation as a Cause of Syncope and Its Prevention by Quinidine Sulfate, with Case Report and Discussion of Diagnostic Criteria for Ventricular Fibrillation. *Am. Heart J.* 4: 709-714 (Aug.) 1929. Rubell, Irwin, and Strauss, Harry: Fatal Paroxysmal Ventricular Tachycardia in a Young Child. *Am. J. Dis. Child.* 51: 633-652 (March) 1936.

8. Bunn, W. H.: Ventricular Tachycardia, Rate of 300. Following Thyroidectomy. *Am. Heart J.* 8: 714-718 (June) 1933.

9. Clarke, T. W.: Paroxysmal Tachycardia in Infancy: Report of a Case. *Arch. Pediat.* 52: 666-675 (Oct.) 1935.

10. O'Flynn, J. L.: Paroxysmal Tachycardia in an Infant. *Brit. M. J.* 1: 507-508 (March 14) 1925.

11. Mackenzie, James: Digitalis. *Heart* 2: 273-386 (Aug.) 1911; *Diseases of the Heart*, ed. 3, London, Oxford University Press, 1918, pp. 428-430.

12. Herapath, C. E. K.: Auricular Flutter. *Brit. M. J.* 1: 213-214 (Feb. 11) 1928.

13. Koplik, Henry: Paroxysmal Tachycardia in Children. *Am. J. M. Sc.* 154: 834-851 (Dec.) 1917.

14. de Bruin, M.: Paroxysmale Tachycardia bei einem Saugling. *Nederl. tijdschr. v. geneesk.* 74: 3415-3418 (July 15) 1930.

15. Langley, R. W.: Paroxysmal Tachycardia with an Unusually Rapid Heart Rate in a Boy of Fourteen Years. *Am. Heart J.* 3: 368-371 (Feb.) 1928.

Blackford and Willius,² had established auricular flutter with two-to-one and three-to-one block and occasional paroxysms of one-to-one response, "usually following exertion." Bunn's⁸ patient had a single attack of paroxysmal ventricular tachycardia, which occurred thirty-six hours following thyroidectomy.

From a study of this series of cases it would appear that an excessively rapid ventricular rate is not an indi-

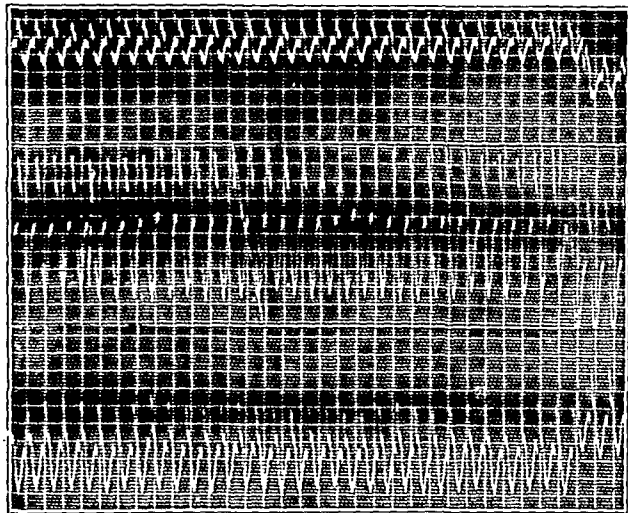


Fig. 1.—Electrocardiogram taken Feb. 19, 1934, the fifth day following the onset of the arrhythmia. The auriculoventricular rate is 310 beats per minute in leads 1 and 2 and 313 beats per minute in lead 3.

cation of heart disease. In only one instance was undoubted heart disease associated with the arrhythmia. Sachs¹⁶ reported the case of a 3 year old child, hospitalized for cardiac decompensation, who had a heart rate of 240 beats per minute when first examined. On the following day an electrocardiogram showed a rate of 280 per minute. A later tracing showed a three-to-one block and configuration suggesting auricular flutter. There were two subsequent attacks of rapid heart action two months and five months later with rates of 200 and 250 respectively. The child died a year after the initial attacks of tachycardia and seven months following the last attack. A postmortem examination showed diffuse subacute myocarditis with dilatation and hypertrophy of the heart. Russell and Ellison¹⁷ thought that congenital heart disease was present in their case of a child 15 months of age who had a rate of approximately 300 beats per minute over a period of five days. They stated that for the first four months of life the child had been entirely normal, with no clubbing of the fingers and no cyanosis present. The cyanosis that was observed during the first three days of the tachycardia did not persist, although the child's lips became blue when she cried. The authors cite the following observations obtained after the resumption of a normal heart rate: "The apex beat was in the fourth left intercostal space, a quarter of an inch internal to the nipple line. The right limit of cardiac dulness was at the right sternal edge. On auscultation the heart sounds were normal and a loud systolic murmur could be heard all over the left sternal edge over the fourth intercostal cartilage. There was no thrill." The nature of the congenital lesion was not determined. In Werley's¹ case a widely patent foramen ovale was found at autopsy, but at the

onset of the rapid rate there was also present an undiagnosed condition. The infant when examined on the second day of tachycardia, the fifth day of life, had a temperature of 102 F., dark-colored vomitus and stools, and numerous vesicles about the umbilicus, some containing reddish fluid. On the following day, the day of death, the heart rate varied from 150 to 160 beats per minute. At autopsy the heart was found to be normal except for the widely patent foramen ovale and congestion of the cardiac vessels.

The prolonged attacks of rapid heart action in the infant group were accompanied by surprisingly few evidences of cardiac embarrassment. O'Flynn's¹⁰ patient, whose rapid rate was maintained for eight days, retained her natural rosy color, nursed well and slept normally during the greater part of the attack. On the fourth day there was cyanosis at times, the heart and liver were enlarged and the urine was scanty. On the fifth day bronchitis developed with hepatic pulsations and Cheyne-Stokes breathing, but this complication did not prevent the complete recovery of the patient. In the case reported by Russell and Ellison¹⁷ there was a definite loss of consciousness for a few seconds just prior to the onset of a heart rate of 300 beats per minute. During the first two days of the tachycardia, which continued uninterruptedly for five days, cyanosis and restlessness were pronounced. These symptoms gradually abated, and during the last two days of the attack the child appeared well and happy. Clarke's⁹ patient, during a fifty-one hour attack of tachycardia, had good color when quiet, but at times, when crying or trying to nurse, the infant became very cyanotic and dyspneic and appeared to be extremely ill. At other times it was fairly comfortable and was able to nurse. Among the other infants there were varying degrees of cyanosis and dyspnea noted, as well as evidences of passive congestion. Duken's³ patient, an infant 8 weeks of age, went into an attack of syncope following the administration of 4 mg. of morphine. The heart rate dropped from 300 to 120 beats per minute, became

irregular, and then both the heart and respiration stopped. Intracardiac injections of epinephrine and cardiac massage were given and the heart resumed pulsations at a rate of from 100 to 120 per minute. In all the cases the symptoms of cardiac embarrassment cleared up quickly on the cessation of the arrhythmia. In the

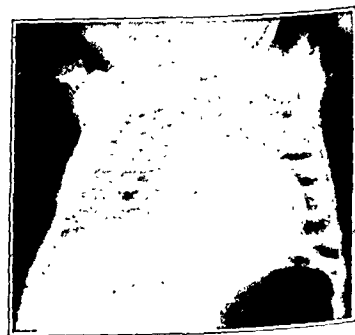


Fig. 2.—Teleroentgenogram taken February 23, the eighth day of recurring attacks of rapid heart action. The heart shows slight enlargement: M. R. 2.6 cm., M. L. 3.6 cm., thoracic diameter 10.8 cm.

adult group the attacks of rapid heart action, which of course were much briefer than those in the infant group, were well tolerated except in Bunn's⁸ case. His patient, an apprehensive individual, suffered a collapse at the onset of the rapid rate. The skin was cold and clammy, the pulse weak and the systolic blood pressure dropped from a normal of 138 to 60 mm. of mercury and the diastolic pressure from 70 to 40 mm. About five hours after the onset of the attack, pulmonary edema was present and the patient's condition seemed critical. On the cessation of the arrhythmia his condition improved

16. Sachs, H.: Zur paroxysmalen Tachycardie. *Zentralbl. f. Herzkrankh.* 18: 65-74 (Feb.) 1926.

17. Russell, H. B., and Ellison, J. B.: A Case of Prolonged Tachycardia. Associated with Congenital Heart Disease, in a Child Fifteen Months Old. *Lancet* 2: 546-547 (Sept. 10) 1927.

rapidly. Blackford and Willis's² patient was not sufficiently inconvenienced during the first hour of her attack to comment about it. She walked several blocks and climbed one flight of stairs during the two hour duration of the rapid rate.

There were three deaths in the series. In Werley's¹ case the tachycardia may have been a contributing cause of death. In the other two cases it is unlikely that the rapid rate was a determining factor in the outcome, as one patient died of heart disease seven months, and the other of streptococcic meningitis ten days, after the final attack of tachycardia. In one case the outcome was not stated. In the remaining thirteen cases (76 per cent) there was a resumption of the normal rate. The prognosis, therefore, in cases of excessively rapid heart rate appears to be good unless an associated condition is present that cannot be controlled. It should be borne in mind that long continued auricular tachycardia of rapid rates or frequent paroxysms of one-to-one response in established auricular flutter constitute a grave burden when the circulation is already inefficient because of a diseased heart muscle. This series of cases, however, shows that excessively rapid rates, such as those under discussion, occur in patients with relatively sound heart muscles. The observations in this series also bears out the statement frequently made that there is greater responsiveness of the conduction system and greater elasticity of the musculature in the hearts of very young children. They therefore tolerate prolonged attacks of rapid heart action and make a quick, and apparently a complete, recovery on the resumption of a normal rate.

In eleven cases collected from the literature, rates of approximately 300 beats per minute were diagnosed as paroxysmal tachycardia of auricular origin (table 4). This greatly exceeds the upper limit of 220 beats per minute which Lewis¹⁸ set for paroxysmal auricular tachycardia. It will be noted, however, that with two exceptions the arrhythmias diagnosed as auricular tachycardia occurred in very young children. In only four of these cases was an electrocardiogram published showing the arrhythmia. Colgate and McCulloch,¹⁹ who published a tracing showing a rate of 291 beats per minute in a case of an infant 3½ weeks of age, stated: "Whether the case reported here should be diagnosed as auricular flutter or paroxysmal tachycardia is uncertain. The criterion by which these two conditions may be differentiated is by no means clear." Farr and Wegman²⁰ also were uncertain as to the interpretation of the tracing in their case of an infant 5½ weeks of age who had a rate of 300. "The electrocardiographic tracings," they contended, "do not permit of an accurate distinction between auricular tachycardia and auricular flutter with one-to-one rhythm. . . . In an adult the rate would make a diagnosis of flutter almost certain, but when one considers the rapidity with which a normal infant's heart may beat when the child is crying, one must admit that a higher limit ought to be postulated for paroxysmal tachycardia in infants." Wilson,²¹ in a summary of cases of rapid heart rates in children, recognized the difficulty of distinguishing between the two arrhythmias. "Both auricular flutter and paroxysmal tachycardia," he said, "have been

observed in children, but there is some confusion as to the separation of the two conditions at this period of life. The reason for this is that in children the auricular rate may often exceed 200 per minute without any block being present and moreover the attacks of very rapid auricular action so far observed in children have all been of comparatively short duration." He did not attempt to distinguish between the two conditions but referred to both as "auricular tachysystole." Lewis²² published an electrocardiogram showing a rate of 290 beats per minute in a child 3 months of age and interpreted the arrhythmia as auricular flutter with a one-to-one rhythm. Among the cases collected from the literature in this series, all other instances of auricular flutter occurred in adults. In these the diagnosis was indisputable, as in each the established rhythm prior and subsequent to the paroxysms of one-to-one rhythm was auricular flutter with block. One case, occurring in an adult, was diagnosed as ventricular tachycardia. Bunn,⁸ who reported the case, expressed doubt as to the correctness of his interpretation and discussed the possibility of its being auricular flutter with one-to-one rhythm.

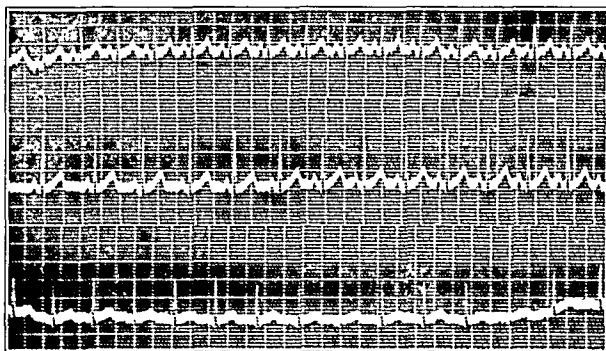


Fig. 3.—Electrocardiogram taken March 3, showing an auriculoventricular rate of 130 beats per minute. Aside from the tachycardia, the tracing is normal.

Interpretation of Electrocardiogram.—The arrhythmia presented in the electrocardiogram with a rate of 310 to 313 beats per minute in the case being reported is interpreted as paroxysmal auricular flutter with one-to-one response and intraventricular block due to fatigue of the heart muscle (fig. 1). Because of the extreme rapidity of the rate, the bizarre character of ventricular complexes and the absence of the onset or offset of the paroxysms it is impossible to be dogmatic about the interpretation of the tracing. Not only is paroxysmal auricular tachycardia a possibility but, owing to the aberration of the QRS complexes, paroxysmal ventricular tachycardia must also be considered. A study of the cases of excessively rapid heart rates collected from the literature revealed the difficulties of interpreting such arrhythmias. In an attempt to determine whether any unanimity of opinion existed concerning their interpretation, copies of the electrocardiogram were submitted to a number of the leading cardiologists in America and Europe. Eleven cardiologists in America and eight abroad gave unqualified agreement to the diagnosis of paroxysmal auricular flutter with one-to-one block and intraventricular block due to fatigue of the heart muscle. Six additional American cardiologists thought that the interpretation was probably correct but that some other diagnosis could not be ruled out with

18. Lewis, Thomas: *Clinical Disorders of the Heart Beat*, London, Shaw & Sons, Ltd., 1925, pp. 57, 79.

19. Colgate, C. E., and McCulloch, Hugh: Paroxysmal Tachycardia in Infancy: Report of Two Cases with Comments on the Differential Diagnosis, *Am. Heart J.* 2: 160-165 (Dec.) 1926.

20. Farr, L. E., and Wegman, M. E.: Extreme Tachycardia in the New-Born, with Report of a Case, *Am. J. M. Sc.* 190: 22-28 (July) 1935.

21. Wilson, F. N.: Résumé on the Circulation, *Am. J. Dis. Child* 10: 376-390 (Nov.) 1915.

22. Lewis, Thomas: *The Mechanism and Graphic Registration of the Heart Beat*, London, Shaw & Sons, Ltd., 1925, pp. 257, 263.

certainty. Six American cardiologists interpreted the arrhythmia as paroxysmal ventricular tachycardia and one as paroxysmal auricular tachycardia. To several the marked regularity of the tracing spoke against its being ventricular tachycardia; to others the distortion of the ventricular complexes in leads 1 and 2 suggested a tachycardia of ventricular origin. Some thought that the only mechanism that would cause so rapid a rate was auricular flutter; others that rates as high as 300 were possible in paroxysmal tachycardia in children. One cardiologist had observed similar records in experimental animals when the evidence pointed to its being paroxysmal tachycardia.

SUMMARY

1. An infant, 4½ weeks of age, at the onset of a fatal attack of streptococcic meningitis showed a heart rate of from 310 to 313 beats per minute, recorded electrocardiographically. Autopsy revealed a grossly normal heart. Microscopically there was no evidence of infection or fibrosis of the heart muscle.

2. Sixteen cases having heart rates of approximately 300 beats per minute were collected from the literature.

3. As the interpretations of very rapid rates in young children in this series presented considerable uncertainty, the electrocardiograms showing a rate of 310 to 313 beats per minute in the case being reported was submitted to a number of eminent cardiologists for their opinion.

1801 Eye Street N.W.

CARCINOMA OF STOMACH IN A CURED CASE OF ADDISON-BIERMER'S (PERNICIOUS) ANEMIA

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NEW YORK

Whereas a great number of cases have been reported of Addison-Biermer's (pernicious) anemia associated with cancer, in the pre-liver era as well as since the institution of liver treatment for this condition, the literature contains very few reports of authentic cases in which all the symptoms of anemia had disappeared, following which cancer of the stomach developed. In view of this rarity we are reporting a case in which a male patient developed Addison-Biermer's anemia in 1927, was completely cured by liver treatment, and recently developed cancer of the stomach.

REPORT OF CASE

J. K., a man, aged 63, married but without children, seen in March 1924, complained of indefinite gastric symptoms. A thorough gastro-intestinal roentgen examination at the time was negative. Examination of the stomach contents showed an absence of free acidity, a low total acidity and no lactic acid. The gastric symptoms were attributed to an unexplained achlorhydria. There was no clinical evidence of anemia.

In the spring of 1928 the patient returned. He had felt well until the fall of 1927, when he began to experience marked weakness, inability to work, mental depression and severe epigastric pain.

In the four years that had elapsed his hair had become almost white and his skin waxen, with a hemic pallor.

Physical examination at this time revealed a short systolic murmur over the apex. The blood pressure was 120 systolic, 80 diastolic.

The spleen was barely palpable. The panniculus adiposus was well retained. The abdominal and knee reflexes were absent. The weight was 107 pounds (48.5 Kg.).

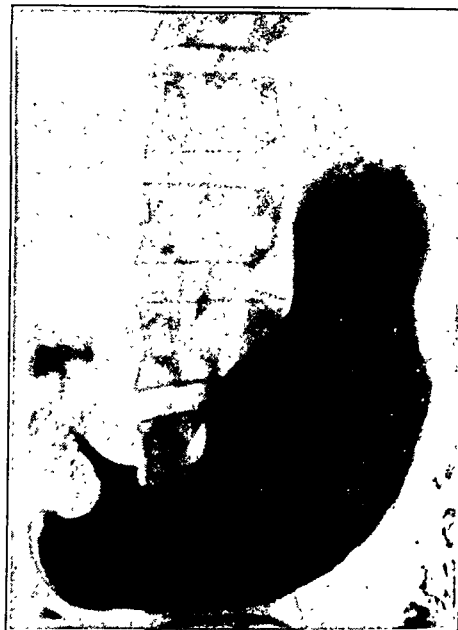


Fig. 1.—Defect in pylorus in a four-hour gastric roentgen examination. The rugae are not visible with this mixture.

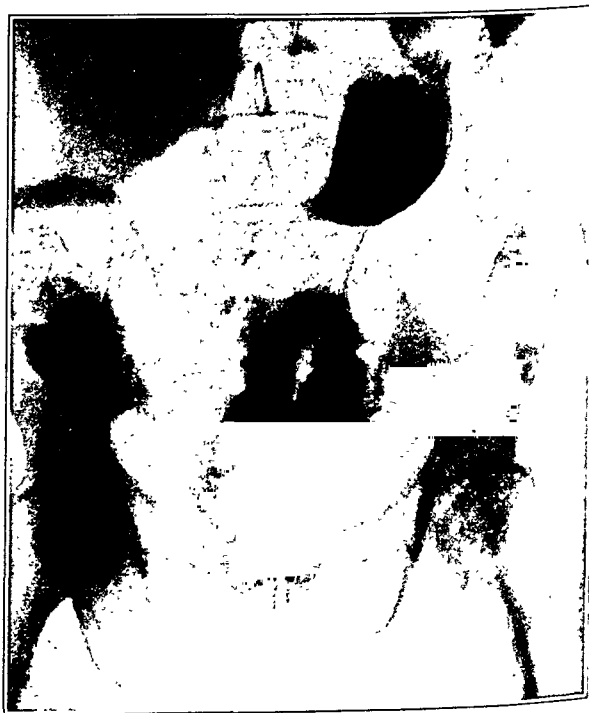


Fig. 2.—Marked residue (forty-eight hours) in a stenosing carcinoma of the pylorus. Barium in large intestine after evacuation of contrast enema.

Examination of the blood revealed hemoglobin 50 per cent, red blood cells 2,610,000, color index 0.9. The differential blood smear showed polymorphonuclears 60 per cent, lymphocytes 26 per cent, myelocytes 3 per cent, monocytes 10 per cent and transitionals 1 per cent.

The gastric contents showed an absence of free hydrochloric acid, total 15. The lactic acid was negative. The blood serum was dark yellow, bilirubin 0.9, icterus index 6. The blood picture was that of Addison-Biermer's anemia, except for the fact that the color index was below 1. The blood Wassermann

X-ray examination of the gastro-intestinal tract showed a definite deformity of the pylorus (fig. 1) and marked gastric catarrh, with a forty-eight hour residue (fig. 2). In view of a diagnosis of stenosing carcinoma of the pylorus, surgical intervention was deemed urgent.

Accordingly the patient was operated on February 21 by Dr. A. A. Berg at the Mount Sinai Hospital, a gastric resection being performed for carcinoma of the pylorus. There was a defect in the mucosa, with thickened mucosal folds, as seen in the resected stomach (fig. 4). The pathologic report by Dr. Paul Klemperer was ulcerated infiltrating adenocarcinoma of the stomach, with involvement of the omentum; no involvement of the lymph nodes; hyperplastic catarrh of the stomach (fig. 5).

The patient was examined Nov. 2, 1936, nine months following the operation. He had gained 15 pounds (7 Kg.) and had a very good appetite. The rest of the physical examination was negative.

The hematologic examination showed hemoglobin 89 per cent, red blood cells 4,400,000 and color index of 1.01. The differential count showed segmented cells 72 per cent, small lymphocytes 22 per cent, eosinophils 2 per cent, mononuclears 3 per cent and large lymphocytes 1 per cent. The individual cells were practically normal with no variation in size, shape or stain.

The roentgenogram (fig. 6) showed a postoperative stomach with a patent lumen and rapid emptying time. There was no evidence of any metastasis.

COMMENT

That cancer of the stomach, or of any part of the gastro-intestinal tract, especially of the cecum, may hematologically simulate Addison-Biermer's (pernicious) anemia is very well known, and it is also true

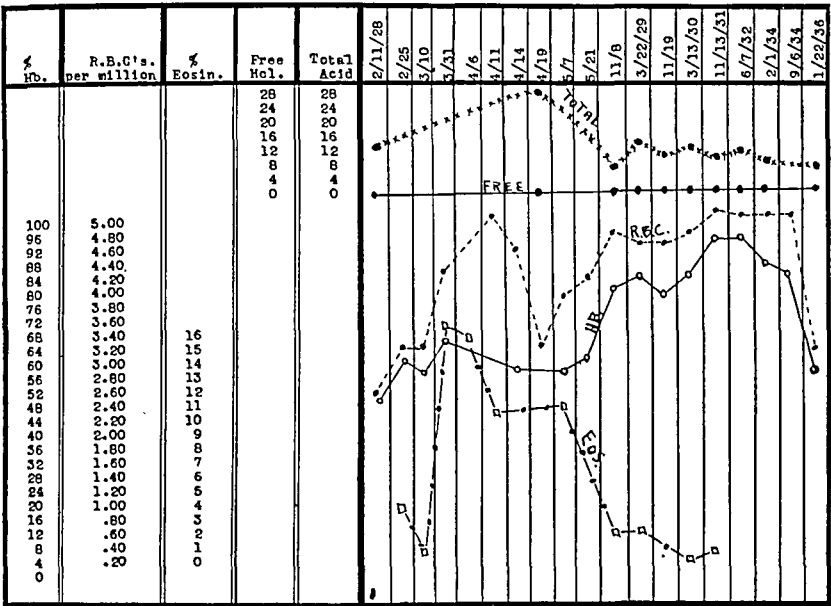


Fig. 3.—Constancy of absence of free acidity and response of blood to liver therapy.

reaction was negative. Roentgen examination of the gastro-intestinal tract was negative.

The condition was diagnosed as Addison-Biermer's anemia and the patient was placed on the regular regimen for such cases of diluted hydrochloric acid and liver extract. The sequence of events in this case as to the progress may be noted from the chart, showing the various blood counts up to the period of 1930 (fig. 3). The case was reported by us in 1931 because of the peculiar reaction encountered.¹

While under liver extract therapy for about a month, the patient reported to us in the office because of symptoms of renal colic and showed a peculiar skin reaction. It was considered that the passage of excessive uric acid crystals explained the renal colic. An urticaria and erythema nodosum with marked itching and pain in the right knee joint were present. Analysis showed an increased uric acid of 4.2 mg. per hundred cubic centimeters of blood (fig. 3). The blood showed a large number of disintegrated white blood cells and eosinophils. The patient was under continuous observation, improving in both symptomatology and weight. The blood returned to a normal state (fig. 3).

In January 1936 the patient complained of loss of weight, appetite and weakness, with inability to enjoy his meals for the past six months. He had occasional attacks of vomiting and regurgitation of food, with a sensation of sourness in the mouth. On several occasions hematemesis occurred.

The physical examination revealed that the patient had lost some weight. His complexion was paler than before and there was pronounced weakness. Palpation showed slight resistance in the epigastrium with a suggestive mass. The blood pressure was 140 systolic and 80 diastolic. Examination of the blood showed hemoglobin 60 per cent, red blood cells 3,200,000 with a color index of 0.93, and white blood cells 7,200. The differential blood smear showed segmented cells 60 per cent, small lymphocytes, 30 per cent, large lymphocytes 4 per cent, eosinophils 2 per cent and mononuclears 4 per cent. There was slight anisocytosis with no predominance of macrocytes. The gastric contents showed free acidity 0, total 10, with occult blood in both stool and stomach contents. It was impossible to perform a fractional test meal because of the marked retention of food.



Fig. 4.—Resected stomach showing thickened mucosa with definite malignant condition in the pylorus. (Obtained through the courtesy of Drs. A. A. Berg and Paul Klemperer.)

that Addison-Biermer's anemia may be associated with cancer, so that it is impossible to determine which was primary. There have been encountered, however, only a few cases in which the hematologic picture and

1. Held, I. W., and Goldbloom, A. (1931) Pernicious Anemia: Report of a Case Showing Response to Liver Extract, J. A. M. A. 96: 1361-1363

symptoms of Addison-Biermer's anemia entirely disappeared as a result of treatment, after which carcinoma of the stomach developed. Strandell² reported in 1931 two cases out of 117 cases, or 1.7 per cent, of cured pernicious anemia. Since then Wilkinson³ has reported 370 cases with or without symptoms of collateral involvement of the spinal cord, in two of which (0.054 per cent) gastric cancer developed after successful treatment of the pernicious anemia, five years prior to the onset of the carcinoma. Conner and Birkeland,⁴ in 658 patients with pernicious anemia at the Mayo Clinic, found that in four, or 0.6 per cent, carcinoma developed when they had been on specific therapy for a period of seven or eight years and had recovered from this condition. Murphy⁵ in his own series states: "In analyzing 440 cases of pernicious anemia only four instances of associated carcinoma of the stomach were found (0.9 per cent). Three of these were adenocarcinoma and the other was carcinoma of the pyloric region."

Although liver treatment is effective in Addison-Biermer's anemia so far as returning the hematologic picture to normal is concerned and may also bring about complete disappearance of the subjective symptoms, the existing anacidity, which is a constant feature of the disease, may continue, as may neurologic manifestations, if these were present. Therefore there are certain authors who are of the opinion that the anacid gastritis is a predisposing factor for the development of gastric cancer. Judging, however, from the very few occurrences of cancer in cured cases of Addison-Biermer's anemia, it is scarcely conceivable that the cancer is at all the result of the persistent anacidity. It is, in all probability, a mere coincidence.

However, it is important, when an individual who has recovered from Addison-Biermer's anemia develops

not to conclude arbitrarily that the condition is a recurrence of Addison-Biermer's anemia. Before such a diagnosis is reached a thorough examination of the gastro-intestinal tract should be made to rule out gastric carcinoma as an independent cause of the anemia. It is also important not to regard the degree of anemia.

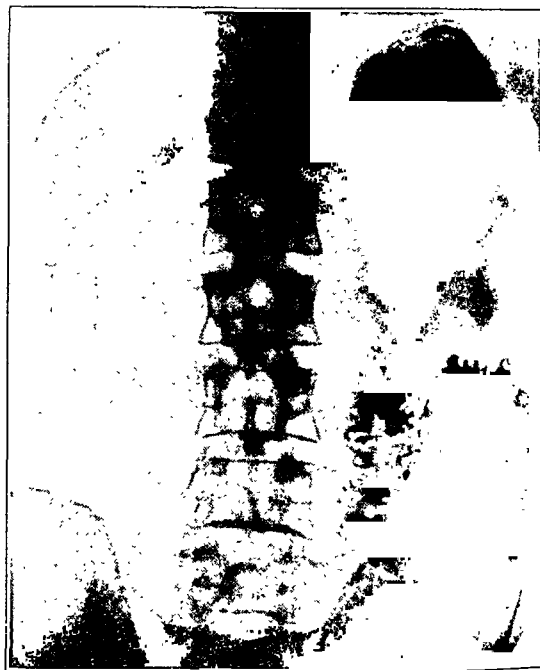


Fig. 6.—Stomach after operation showing patent lumen and rapid emptying with hyperperistalsis and hypermotility.

when cancer is the cause, as a contraindication to surgery, for in many cases successful removal is possible and life may be indefinitely prolonged.

SUMMARY

1. In the event of recurrence of symptoms and hematologic signs of Addison-Biermer's anemia or secondary anemia after the cure of Addison-Biermer's anemia, differential diagnosis between actual recurrence and an independent cause of the anemia, such as gastric carcinoma, must be made.

2. Successful removal of the lesion may be possible, in spite of the anemia.

2 East Ninety-Fifth Street—65 East Ninety-Sixth Street.

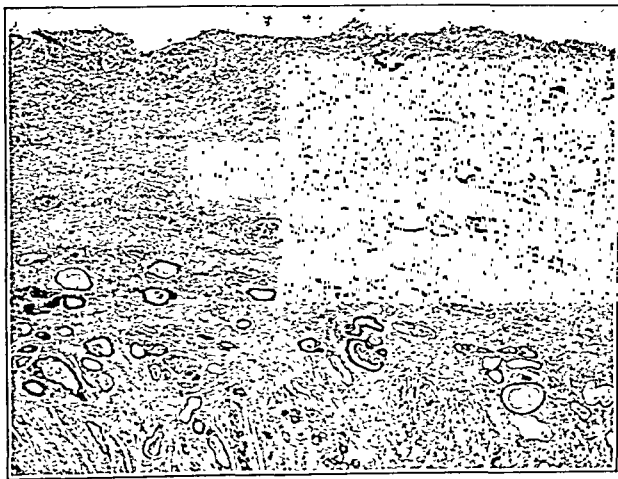


Fig. 5.—Microscopic section of the resected stomach showing ulcerated infiltrating adenocarcinoma of the gastric mucosa, with a loss of the normal contour. (Courtesy of Drs. A. A. Berg and Paul Klempner.)

anew the hematologic picture of the disease or secondary anemia, as in our case, with recurrent symptoms.

2. Strandell, Burger: Pernicious Anemia: A Study of 117 Cases. *Acta med. Scandinav.*, 1931, supp. 40, pp. 89-97.

3. Wilkinson, J. F.: Pernicious Anemia and Malignant Diseases. *Acta med. Scandinav.* 50: 466-479, 1933.

4. Conner, H. M., and Birkeland, I. W.: The Coexistence of Pernicious Anemia and Lesions of the Gastro-Intestinal Tract: Carcinoma of the Stomach; Consideration of Twenty Cases: Eleven Reported. *Ann. Int. Med.* 7: 89-104 (July) 1933.

5. Murphy, W. P.: Personal communication to the authors, April 22, 1936.

Countless People Contribute.—Every hospital recognizes more or less clearly its set obligations; what helps or hinders most of their fulfillment are the crystallized traditions which give an institution its particular individuality. In the development of this quality countless people, however unconsciously, have contributed—those whose charity has given comfort and peace of mind, as well as those whose professional skill has brought physical well being to the maimed and sick; those who have brought the greatest sympathy and understanding to the problems of the young people here to learn; those who may never have come in special contact either with patients or with students but, freed from the killing routine of the clinic, have applied themselves to the forwarding of knowledge; those who have managed the business affairs of the hospital and its relations to the outside world; those, too, who have made the beds, kept the books, answered the phone, cooked the food, done the wash, stoked the fires, scrubbed the floors and killed the rat—in the hospital Jack built.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

GRANULOMA VENEREUM OF CERVIX
UTERI (GRANULOMA INGUINALE)
SIMULATING CARCINOMA

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AND

ROBERT B. GREENBLATT, M.D.

AUGUSTA, GA.

A clinicopathologic study of granuloma inguinale has enabled us to describe its specific histologic picture.¹ This characteristic pathologic appearance was determined by the study of sections of tissue taken from lesions in which the Donovan bodies had previously been demonstrated in films.

We have recently observed two patients with granulomatous growths of the cervix that exhibited the specific histologic picture of granuloma inguinale. It is interesting to note that in these two cases epithelioma was suspected clinically. This suspicion was so strong in one instance that a radium pack was applied at the time of biopsy. From these observations we are enabled to report a heretofore disregarded entity. However, Gardner² has briefly suggested that granuloma of the cervix may possibly be related to granuloma inguinale. Because lesions of this specific disease, commonly called granuloma inguinale, have now been observed at sites other than the inguinal region, we prefer the term granuloma venereum. We are therefore placing on record and describing a lesion which, to differentiate from cancer of the cervix, challenges the diagnostic acumen of the clinician. Histologic differentiation offers little difficulty. A knowledge of the microscopic picture permits the pathologist to render a specific diagnosis in these cases, which hitherto have been dismissed with the sententious but noncommittal description "nonspecific granulation tissue."

REPORT OF CASES

CASE 1.—A Negress, aged 33, a tertipara, was referred to the cancer clinic of the University Hospital because of a fungating growth involving the whole cervix. She gave a history of intermenstrual bleeding for three months and daily spotting for the past three weeks. Dr. G. T. Bernard, chief of the cancer clinic, examined the patient and described the condition as follows: "The cervix presents a large papillary growth, round in contour without surrounding infiltration. The finger can readily encircle the cervix. The surface of the growth is granular and red in appearance and does not bleed when gently sponged. The central portion is ulcerated. The fundus of the uterus is freely movable, but the lower uterine segment appears to be slightly fixed." Biopsy was taken and 3,000 mg. hours of radium was given. The granulomatous lesion disappeared within several days. When last examined, one month after treatment, a few minute residual ulcers and a diffuse pin point nodularity were present. The Wassermann reaction on the blood was four plus. The Frei test was positive. She also reacted positively to both the chancroidal bacillary and pus antigen tests.

The pathologic report of the biopsy was: Granuloma inguinale of the cervix uteri. The "pathognomonic cells" are very numerous throughout the sections. There is no evidence of malignancy (fig. 1).

CASE 2.—A Negress, aged 18, five months pregnant, was found on examination at the university clinic to have a clean, raised, circumscribed tuft of reddish granular tissue measuring 3 by 2.5 by 1 cm., situated at the left border of the

vulva and fourchette. The cervix was freely movable and exhibited a soft velvety red lesion covering the whole anterior lip and the right half of the posterior lip. There was no adnexal induration or involvement of the vagina. Numerous Donovan bodies were demonstrated in films from both the cervical and the vulvar lesions. Only a few other organisms were found. Biopsies were taken from the cervix and vulva. The Wassermann reaction on the blood and the Frei test were negative. The intradermal chancroidal bacillary and pus antigen tests were positive. She is responding to fuadin therapy.

The pathologic report on biopsies was: Granuloma inguinale of the cervix and vulva. Sections from both lesions reveal the "pathognomonic cells" in abundance (fig. 2).

COMMENT

The histologic picture of sections from these two cases conforms to our previous description, a summary of which is here included:¹

The essential features are the massiveness of the cellular reaction in which the luxuriant granulation tissue is surcharged with plasma cells; the relative paucity of lymphocytes; the diffuse sprinkling of polymorphonuclear leukocytes with focal collections in the superficies . . . ; the pathognomonic large mononuclear cells scattered in various numbers throughout the granulation tissue. This pathognomonic cell is specific for

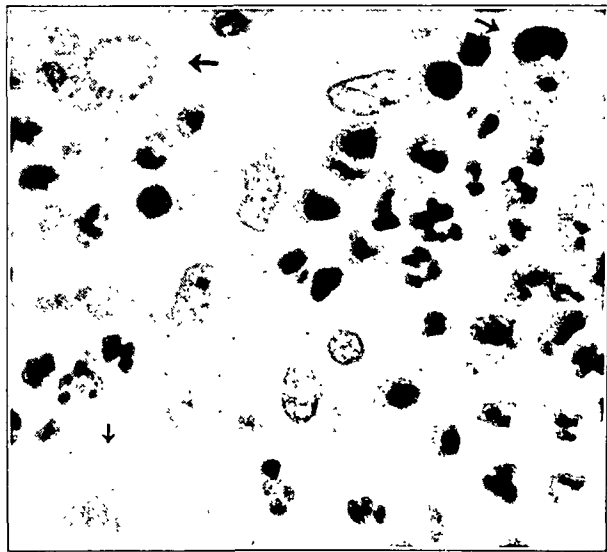


Fig. 1 (case 1).—Section from lesion of cervix. Note the characteristic cell of granuloma inguinale and the arrangement of the bodies within the intracytoplasmic cysts (upper left). Two other cells, not in focus, are indicated by arrows. Hematoxylin and eosin. Slightly reduced from a photomicrograph with a magnification of 1,440 diameters.

granuloma inguinale. The relatively large size of the cell, which varies from 25 to 90 microns, and the presence of many intracytoplasmic cysts filled with deeply stained bodies are its cardinal features. These bodies are round or rodlike, are grouped peripherally within the cysts and have an affinity for hematoxylin.

In addition to this description we have a further contribution to make. We have observed in sections that the so-called Donovan bodies have an affinity for silver salts. The use of the silver impregnation method of Dieterle³ facilitates the demonstration of the specific cell laden with these bodies. The cell outline, nucleus and cyst walls stain pale yellow, while the Donovan bodies appear as dark brown or black rectangular or elongated ovoid forms with intense bipolar staining. These bodies, because of their contour and polar characteristics, resemble a safety-pin (fig. 2).

From the Department of Pathology, University of Georgia School of Medicine.

1. Pund, E. R., and Greenblatt, R. B.: Specific Histopathology of Granuloma Inguinale, *Arch. Path.* 23: 224 (Feb.) 1937.

2. Gardner, G. H.: *Gynecology*, by Howard A. Kelly and collaborators, New York, D. Appleton & Co., 1928.

3. Dieterle, R. R.: Method for Demonstration of *Spirochaeta Pallida* in Single Microscopic Sections, *Arch. Neurol. & Psychiat.* 18: 23 (July) 1927.

DIFFERENTIAL DIAGNOSIS AND CLINICAL
DESCRIPTION

Granuloma venereum of the cervix is characterized by a moderately clean tuft of reddish meaty tissue, abruptly raised above the surface and with well defined borders. The lesion has a peculiar resilience, is velvety soft to palpation and does not bleed easily on touch.

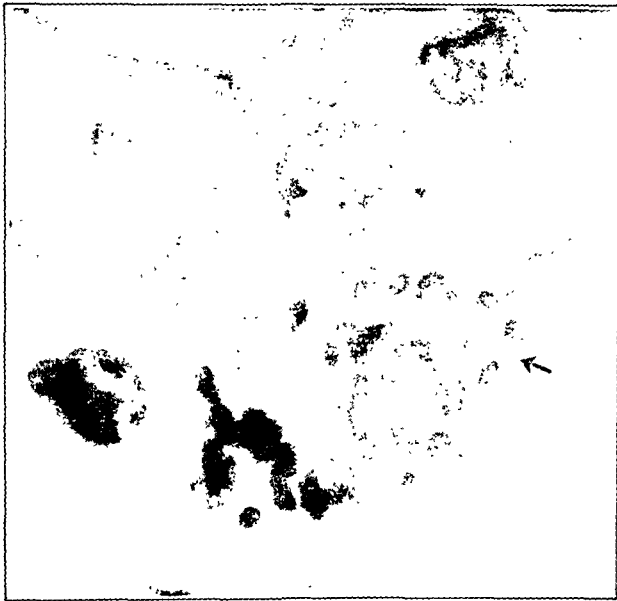


Fig. 2 (case 2).—A pathognomonic cell in a section from the cervix stained by Dieterle's silver technic. Note the characteristic safety-pin appearance of some of the intracyclic bodies. Slightly reduced from a photomicrograph with a magnification of 3,500 diameters.

However, the growth may become markedly exuberant, fungating and ulcerative. The cervix alone may be involved, as in case 1, or the disease may be manifest elsewhere, as in case 2. Nonetheless the lesion of the cervix presents itself as an entity that must necessarily be differentiated from both the ulcerative and the vegetative type of carcinoma of the cervix. Malignant growths of the cervix have a friable hardness which can frequently be broken up with the finger. The various manifestations of cervical endometritis, such as polypoid hyperplasia and eversion, should be borne in mind. Cervical endocervicitis, whether due to gonorrhea, nonspecific infection or erosion, may sometimes offer difficulties in the differential diagnosis. A primary chancre, tertiary syphilis or a chancroidal lesion do not uncommonly involve the cervix. Tuberculosis of the cervix is rather rare. In the final analysis the diagnosis of these conditions must be determined by histopathologic study of biopsies.

SUMMARY AND CONCLUSIONS

1. A heretofore unrecognized entity, granuloma venereum of the cervix (granuloma inguinale), clinically simulates carcinoma of the cervix.

2. Since the involvement by the Donovan body occurs elsewhere than in the groin and on the external genitalia, the name of granuloma venereum is preferable.

3. It is characterized clinically by a tuft of reddish meaty tissue, raised above the surface, clean in appearance, velvety soft and resilient to palpation, and it does not bleed readily to touch.

4. Histopathologically, the essential features are the exuberant granulation tissue reaction in which the

pathognomonic cell is found. This cell is a large mononuclear cell with intracytoplasmic spaces in which are dispersed the so-called Donovan bodies.

5. The affinity of the intracyclic bodies for silver salts facilitates the recognition of the characteristic cell. With silver these bodies are stained black to brown and have a safety-pin appearance because of their elongated ovoid outline and intense bipolar staining reaction.

HYPERINSULINISM ASSOCIATED WITH
CALCIFIED TUMOR OF THE
PANCREAS

WITH SURGICAL CURE

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AND

JOHN A. GIUS, M.D.

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Soon after the discovery of insulin in 1923, Banting and his associates¹ noted the manifestations of hypoglycemia when the blood sugar fell below 0.07 per cent under the influence of insulin. They described the typical symptoms, which are familiar today to all who have used insulin, and observed that the condition was relieved by administration of carbohydrate and avoidance of excessive doses of insulin. The condition termed "spontaneous hyperinsulinism" was first suggested by Seale Harris² in 1923, and he reported five cases in 1924. In 1926 Warren³ reported fifteen cases of islet cell tumors from the literature and added four more. The significance of these tumors was not proved until 1927, when Wilder and his associates⁴ demonstrated a definite pathologic basis for hypoglycemia due to hyperinsulinism. At operation a pancreatic carcinoma with metastases to the liver, regional nodes and mesentery was found. Autopsy showed that these lesions were composed of cells closely resembling islet cells. Extract of a liver nodule was said to act like insulin when injected into rabbits.

The first successful operative removal, credited to Roscoe Graham, was reported by Howland and his associates⁵ in 1929. Subsequently some thirty successful cases have appeared in the literature. Washington



Fig. 1.—Pancreatic tumor (operative specimen).

1. Banting, F. G.; Campbell, W. R., and Fletcher, A. A.: Clinical Experience with Insulin in Diabetes, *Brit. M. J.* 1: 8-12 (Jan. 6) 1923.
2. Harris, Seale. Hyperinsulinism and Dysinsulinism, *J. A. M. A.* 82: 729 (Sept. 6) 1924.
3. Warren, Shields: Adenomas of Islands of Langerhans, *Am. J. Path.* 2: 335-340 (July) 1926.
4. Wilder, R. M.; Allan, F. N.; Power, M. H., and Robertson, H. E.: Carcinoma of the Islands of the Pancreas: Hyperinsulinism and Hypoglycemia, *J. A. M. A.* 89: 348-355 (July 30) 1927.
5. Howland, Goldwin; Campbell, W. R.; Maltby, E. J., and Roberts, W. L.: Dysinsulinism. Coma and Convulsions Due to Islet Cell Tumors of the Pancreas with Operation and Cure, *J. A. M. A.* 92: 674-677 (Aug. 31) 1929.

University surgeons have contributed five cases.⁶ Bast, Schmidt and Sevringhaus⁷ reported the successful removal of a carcinoma of the islands of Langerhans for status epilepticus due to hyperinsulinism, and Whipple and Frantz⁸ in a comprehensive review reported six cases of pancreatic adenomas successfully operated on at the Presbyterian Hospital in New York during 1934-1935. Space will not permit the enumeration of all the cases; suffice it to say that surgical treatment of this type of lesion has been very gratifying.

The symptoms, as originally described by Banting, Campbell and Fletcher,¹ consist of nervousness, tremor, hunger, anxiety, sweating, fatigue, emotional instability, incoordination of the finer movements, vasomotor phenomena such as pallor and flushing, confusion, difficulty of articulation, syncope, collapse and unconsciousness. Convulsions may be added to this list. Recently the gastro-intestinal manifestations of hyperinsulinism have been studied by Harris.⁹ He points out the frequency with which it simulates peptic ulcer, irritable colon, cholecystitis, appendicitis, pancreatitis and especially the group of cases now classified as neuroses of the stomach, intestine and other abdominal viscera.

The fact that the symptoms are frequently so protean and indefinite has resulted in many of the cases being labeled idiopathic epilepsy, alcoholism, neurasthenia and the like before the hypoglycemia has been discovered. It must be true that many of these cases are never diagnosed, and to correct this Harris advocates routine fasting blood sugar estimations on all patients.

It is to be recalled that spontaneous hypoglycemia is merely a descriptive term and denotes a lowering of blood sugar below normal limits. This condition may be due to a variety of causes and is not to be confused with hyperinsulinism. Wauchope¹⁰ has listed the causes of hypoglycemia:

1. Excess of insulin due to therapy, tumors, hyperplasia or functional hyperinsulinism.
2. Lack of opposing secretions which may result from disease of the suprarenal glands, tumors of the anterior or posterior lobe of the pituitary or myxedema.
3. Lack of glycogen resulting from destruction of reservoirs, disease of the liver, or wasting of muscles, abnormal secretion of sugar in starvation and intoxication from phosphorus or arsenamine poisoning.
4. Interference with regulating centers may result from disease affecting the pons or overactivity of the vagus nerve.

Holman¹¹ has described three surgical conditions recorded in the literature as being responsible for hyperinsulinism resulting in hypoglycemia:

1. Metastatic tumors or carcinomata of the islets of Langerhans which contrary to usual carcinoma of secreting glands have retained their property of producing insulin.
2. A benign tumor or an adenoma of the islets comparable to an adenoma of the thyroid.

6. Carr, A. D.; Parker, Robert; Grove, Edward; Fisher, A. O., and Larrimore, J. W.: Hyperinsulinism from Beta-Cell Adenoma of the Pancreas, *J. A. M. A.* **96**: 1363-1367 (April 25) 1931. Womack, N. A.; Gnagi, W. B., and Graham, E. A.: Adenoma of Islands of Langerhans with Hypoglycemia, *ibid.* **97**: 831 (Sept. 19) 1931. Graham, E. A., and Womack, N. A.: The Application of Surgery to the Hypoglycemic State Due to Islet Tumors of the Pancreas and Other Conditions, *Surg., Gynec. & Obst.* **56**: 728-742 (April) 1933. Smith, M. G., and Seibel, M. G.: Tumors of the Islands of Langerhans and Hypoglycemia, *Am. J. Path.* **7**: 723-739 (Nov.) 1931.

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11. Holman, E., and Railsback, O. C.: Partial Pancreatectomy in Chronic Spontaneous Hypoglycemia, *Surg., Gynec. & Obst.* **56**: 591 (March) 1933.

3. An overactivity of an otherwise normal appearing pancreas comparable, as pointed out by Wilder, to hyperthyroidism due to hyperplasia.

All three of these conditions have been subjected to surgical intervention with amelioration and in some cases complete cure. The most frequent condition reported and the most remarkable results have been in group 2. Surgical resection in group 3 has been disappointing.

Pancreatic lithiasis is a relatively rare condition. Nine cases had been reported at the Mayo Clinic¹² before 1934. Seeger¹³ was able to collect 100 cases from the literature in 1924. In most cases the stones are eccentric and occupy the cortex or an accessory pancreatic lobe. Usually they produce no obstruction and no symptoms. In a case reported by Rienhoff and Lewis¹⁴ a pancreatic calculus which had caused an acute pancreatitis was found at operation to be impacted in the pancreatic duct. There is no mention of hypoglycemia. In case 5 of Whipple and Frantz's series there were two tumors in the body of the pancreas. A third of one of these was calcified and both tumors showed extensive degeneration and fibrosis.

The frequency with which degeneration occurs in islet cell tumors has been noted as well as the apparent lack of correlation existing between the size and microscopic appearance of the tumor and the severity of the hypoglycemia.¹⁵

In the present case, hyperinsulinism of a marked degree associated with a pancreatic calculus without gross adenomatous islet tissue is reported. The fact that clinical cure followed surgical removal seems to establish the etiologic relationship. It is possible, however, that tumor tissue of microscopic proportions was destroyed at operation. On the other hand, the mechanism of the production of hyperinsulinism on the basis of a seemingly inert foreign body in the head of the pancreas has not been adequately explained on a physiologic basis. This subject is to be investigated further.

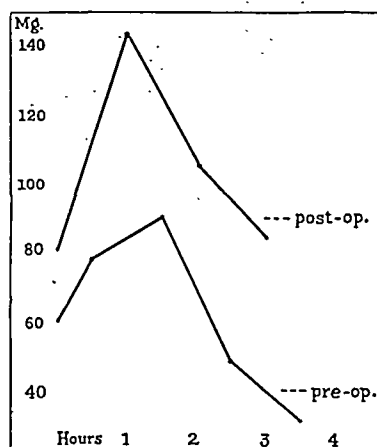


Fig. 2.—Dextrose tolerance test (average figures).

REPORT OF CASE

History.—C. H., a white man, aged 48, admitted to the Pierce County Hospital Aug. 13, 1935, complained chiefly of "weakness." In 1923 the patient first noted a constant sensation of chilliness in spite of increased clothing, warm weather and increased activity. Several years later he began having rather severe headaches, which seemed to originate in the neck, radiating into the occipital and frontal areas, accompanied by marked general weakness. These headaches would often appear

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15. Frantz, V. K.: Personal communication to the authors.

suddenly, persist for a few hours and then decrease in intensity, but usually they remained as a pressure sensation for several days. About this time the patient also experienced vertigo and blurring of vision, especially on severe exertion. Frequently this resulted in collapse. However, there was at no time loss of consciousness or convulsive movements. Occasionally the patient observed marked tremors of the extremities and fibrillary muscle twitching.

Dyspnea on exertion without apparent cardiac distress later became prominent, and the patient was rendered almost totally incapacitated. In spite of a good appetite and no particular food idiosyncrasies, he lost weight amounting to about 35

TABLE 1.—Dextrose Tolerance Test *

November 1		December 12	
Fasting.....	60.0 mg.	Fasting.....	62.5 mg.
½ hr.....	84.7 mg.	½ hr.....	74.0 mg.
1½ hr.....	104.0 mg.	1½ hr.....	85.0 mg.
2½ hr.....	41.0 mg.	2½ hr.....	60.0 mg.
3½ hr.....	33.0 mg.		

* 100 Gm. dextrose was used as the standard dose.

pounds (16 Kg.) over a period of three years. No abnormal appetite for carbohydrates was noted. A very evident emotional instability was manifested, especially by the patient's inability to get along with others and also by his extreme annoyance at trivialities. He had no pain and no digestive symptoms but complained of a more or less constant sensation of heaviness in the epigastrium. At no time was there polydipsia or polyuria, and nocturia occurred infrequently.

The patient had always enjoyed good health previous to the onset of the present illness. He had had measles, whooping cough and smallpox in childhood, malaria in 1910 and influenza in 1928, from which he recovered with no apparent complications. There had been no accidents and no previous operations. He drank two or three cups of coffee daily and used tobacco and alcohol infrequently. He had been taking acetylsalicylic acid for headache with some relief.

He was born in Kansas but had lived in Washington for the past twenty years and had worked as a plasterer for thirty-five years.

The family history was irrelevant. One sister had Bright's disease and goiter. There was no history of diabetes mellitus.

Physical Examination.—The temperature was 98.6 F., the pulse 72, the blood pressure 120 systolic, 90 diastolic, and the respiration rate 18. He was pale, rather weak and quite thin and he seemed to be mentally alert. He was quite gray for his years. There were no evident cranial defects. The pupils reacted normally. The fundi were normal. Dentures were

TABLE 2.—Postoperative Blood Sugar Estimations (Fasting)

5/ 4/36.....	Operation
5/ 5/36.....	114.3 mg.
5/ 6/36.....	94.6 mg.
5/ 7/36.....	93.0 mg.
5/ 9/36.....	62.5 mg.
5/15/36.....	54.0 mg.
9/ 8/36.....	115.0 mg.

present. The thyroid was slightly enlarged but free of nodules. Chest expansion was normal. The lung fields were clear. The heart was essentially normal. The abdomen was flat and there were no masses or points of tenderness. The liver was at the costal margin. The spleen was not enlarged. There was a slight tremor of the outstretched fingers.

The basal metabolic rate was plus 1. October 3 the urinalysis showed specific gravity 1.015, very acid, albumin 0, reduction 0, acetone 0. Occasional pus cells were present. Hemoglobin was 92 per cent (Dare); red blood cells numbered 4,660,000; the color index was 1. White blood cells numbered 9,400, polymorphonuclear leukocytes 68 per cent, small lymphocytes 25 per cent, monocytes 6 per cent, basophils 1 per cent. The sputum was negative for acid-fast organisms. The blood sugar October 28 (Folin-Wu method) was 63.3 mg. per hundred cubic centimeters of blood. The result of the dextrose tolerance test is given in table 1.

The Wassermann reaction was negative. X-ray examination of the chest showed heart and lungs within normal limits. No x-ray examination of the abdomen or skull was made. No blood amylase estimation was done.

Progress in Hospital.—A diagnosis of hypoglycemia of unknown origin was made. The patient improved symptomatically on bed rest and a high carbohydrate diet. He was discharged to the outpatient department, where he was followed until April 30, 1936, when he was readmitted to the hospital.

During the interim the patient consumed large quantities of carbohydrates at frequent intervals. He estimated that he had spent \$70 in four months for hard candy alone. Although he had gained weight, felt somewhat stronger and was able to be up and about most of the time, he did not have sufficient energy to perform any sort of manual labor. It was observed that a marked psychoneurotic attitude had developed, which confused the picture somewhat and placed some doubt on the possibility of his multiple symptoms being due to a single etiologic factor.

Operation and Result.—Exploratory laparotomy for a possible pancreatic tumor was performed May 4 under ether anesthesia. A vertical incision to the left of the umbilicus was made. The greater omental bursa was opened below the stomach and the pancreas was exposed. The body of the pancreas was entirely normal but a tumor was palpated in the head, so that the approach was changed. The duodenum was mobilized by cutting the lateral peritoneal reflexion. The pelvis of the gallbladder was dissected up from the common duct, and the common duct then was exposed behind the duodenum and retracted so that the tumor could be removed from the head of the gland. This was done by surgical cautery, and oozing was controlled by electrocoagulation. A strip of plain gauze

TABLE 3.—Dextrose Tolerance Tests

5/20/36		6/8/36		7/7/36	
Fasting....	62.5 mg.	Fasting..	78.7 mg.	Fasting..	104 mg.
½ hr.....	111.6 mg.	1 hr.....	140.8 mg.	1 hr.....	180 mg.
1½ hr.....	109.6 mg.	2 hr.....	103.1 mg.	2 hr.....	109 mg.
2½ hr.....	86.9 mg.	3 hr.....	71.9 mg.	3 hr.....	97 mg.

packing was placed in the area of resection and was surrounded by plain rubber tissue, which was brought out through the upper end of the incision. The abdomen was closed in the usual manner.

A hard calcareous tumor was embedded in the head of the pancreas (fig. 1). It measured about 2.5 by 3 cm., was definitely circumscribed, and was nodular but not infiltrating. The gallbladder and duodenum were normal. The liver was somewhat sclerotic.

The patient withstood the operation well and, except for a moderate degree of postoperative distention, convalescence was uneventful. Ten per cent dextrose in physiologic solution of sodium chloride was given intravenously on the first three days. Blood sugar estimations, made at least twelve hours after such administration, showed that the blood sugar remained at a normal level. Subsequently the oral intake was sufficient, and the patient was soon eating a general diet without additional feedings. The drains were removed on the eighth day. Healing was delayed by a small amount of pancreatic drainage. This rapidly cleared up, leaving a firm scar in a few weeks.

The day following the operation the patient volunteered the information "I breathe more freely and feel stronger than I have for years." Very soon a remarkable improvement in his disposition was likewise observed, and he began making detailed plans of the work he was going to do following his discharge from the hospital. When last observed, five months later, he had regained his strength but complained of backache after exertion. His appetite was good and he had had no headaches or attacks of weakness. He was eating a normal diet. The sense of heaviness in the epigastrium had disappeared. Dextrose tolerance tests confirmed the disappearance of hypoglycemia (fig. 2). The postoperative blood sugar estimations are given in table 2, and the results of the dextrose tolerance tests in table 3.

COMMENT

The disappointing feature about this case was the character of the tumor. We expected to find a glandu-

lar, secreting growth and found only a calcareous mass, which could not be sectioned. No pancreatic tissue was found by the pathologist. Soft tissue surrounding the stony mass consisted of fat, connective tissue and several small lymph nodes. There seems to be an analogy between adenomas of the pancreas and of the thyroid. Both become calcareous and both may be associated with hyperfunction. We can offer no explanation but submit this report merely as an example of the relief of hypoglycemic symptoms by removal of a calcareous pancreatic tumor.

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TORULOSIS IN MAN

REPORT OF A CASE

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Torulae are yeastlike parasitic fungi frequently found in sputum cultures, especially from patients with chronic bronchitis in the tropics.¹ Under proper conditions they become pathogenic. They have been found in every part of the earth where there have been men educated to recognize them. They occur abundantly in nature on trees, fruits, bees, wasp nests and insects and have even been found in canned butter and milk.

Botanically they fall into the genus of *Cryptococcus*, which belongs to the subclass of *Fungi Imperfecti*, the waste basket for all species that have not exhibited a complete life history and many of which have no relation to disease. Torulae are usually round, multiply both in tissues and in cultures by budding, do not form endospores, and are usually red, white or black. Torula histolytica is white.

Although they do not produce mycelia in tissue or in cultures, they do throw out pseudohyphae—projections which may become so long as to dissipate completely the original round shape of the organisms and simulate mycelia—but these do not branch. In contrast to yeasts, torulae ferment sugars little or not at all.

To date there have been less than sixty cases of torula infection in man reported in the entire world. As early as 1901 Bertarelli and Calamida² of Germany recognized that these "yeasts" were the causative factor in many throat and tonsil infections, particularly membranous angina. In 1902 Frothingham³ reported a case of infection of the lung in a horse by a torula.

It was not until 1916, however, that Stoddard and Cutler⁴ accurately described the clinical and pathologic characteristics of torula infection in man for the first time. They reviewed the reported instances of systemic blastomycosis and found four cases presenting sufficient apparent variation in character of the infecting organisms and in the pathologic condition to justify their inclusion in a separate group. These were cases reported by von Hansemann,⁵ Türk⁶ and Rusk.⁷ Stod-

dard and Cutler believe that many torula infections occur which result in recovery without the true nature of the disease being suspected.

Since 1926, cases of torula infection have been reported of the skin,⁸ central nervous system,⁹ lymph glands,¹⁰ tongue,¹¹ knee,¹² nasopharynx,¹³ meninges,⁹ lungs¹⁴ and infections of the entire body.¹⁵

Ten years ago Dr. Ruth Alvarez¹⁶ published an article on red torula infection of the tongue in which she records having found torula agglutinins in the serum of the patients so affected by a complement fixation test, thereby showing a general reaction of the human body toward these organisms. The agglutination tests were negative two months after the disappearance of the tongue lesions.

Early in 1936 Mitchell¹⁷ published an article in which he associated torula infection with Hodgkin's disease. He asserted that the microscopic picture of torula infection is that of Hodgkin's disease and that these two rare diseases appear together much more frequently than may be accounted for by the theory of probability.¹⁸

The infecting organisms usually enter man by way of the respiratory tract, most often affecting the lung, which it may obstruct mechanically or erode gradually without inflammatory reaction. Occasionally they enter the lymphatics or blood stream and then may affect any organ in the body—most commonly the nervous system.

The symptoms are varied, depending on the parts attacked, but are always delayed in appearance owing to an insidious onset. In the lungs the picture may suggest tuberculosis or tumor. A cough develops with little or no fever or night sweats but with some pain in the chest, malaise and loss of weight. Physical examination may disclose no abnormal signs other than a few bronchial or subcrepitant râles. There may be a slight leukocytosis, but the differential blood count varies little from normal. The organisms may be found in the sputum as round fungi or as short, hairlike rods. Roentgenograms usually show some scarring. Microscopically the organisms have been found in the parenchyma of the lung as well as in the bronchioles, which they may obstruct mechanically without toxicity of the patient.

The cerebral symptoms resemble those due to chronic meningitis or tumor. Fever, if present, is of only moderate grade. The white count is not elevated. The spinal fluid has shown increase of polymorphonuclear leukocytes and of lymphocytes and positive protein

Dr. J. F. Kessel and Dr. B. F. Sturdivant were of valuable assistance in providing the laboratory tests.

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tests. The organisms may be found in the spinal fluid. The diagnosis may be made by cultures of the spinal fluid on agar or potato at room temperature and by the intraperitoneal inoculation of white mice or rats. The outlook is apparently unfavorable but may be more hopeful than the few reported cases indicate.

The prognosis appears to depend on the virulence of the particular torula involved, on the resistance of the patient and on the tissue involved. As has been said, torulae are frequently found as contaminating microorganisms in sputum cultures. Castellani¹ has isolated them from the sputum of patients in the tropics suffering from chronic bronchitis. These are saprophytic or only semipathogenic. On the other hand, many of the torula infections reported in this country have terminated fatally. Although this is undoubtedly due to the fact that cases not coming to autopsy are not reported for the most part, it nevertheless shows that the virulence of the different torulae varies greatly.

That the prognosis depends on the resistance of the patient is suggested by the fact that the immediate members of the family of patients suffering from torula infection are free from infection by the same organism. That the tissue infected plays a prominent part in the prognosis is proved by the fact that torula infection of the central nervous system ends fatally, while infection of the tongue, lung or skin may end more favorably.

Treatment should include serum from a horse previously inoculated with the torula from the patient to be treated. In the case reported by Alvarez, quinine and neoarsphenamine were being administered for the treatment of chronic malaria at the time the lesion of the tongue was discovered. The lesion began to diminish in size and after about a month of this treatment it was no longer visible. Sheppe,¹⁴ on the other hand, states that arsphenamine is without value in treating torula of the lung and suggests an antituberculosis regimen with large doses of iodides. He suggests tartrates because they have been so effective against leishmaniasis. Gill¹⁵ reported beneficial results in combating Torula histolytica of the blood stream following sinus infection of the head by daily administration of 120 grains (8 Gm.) of potassium iodide internally, 15 grains (1 Gm.) of sodium iodide intravenously and x-ray exposures to the sinuses, while others state that roentgenograms were of no avail in the cases reported by them but on the contrary excited such discomfort that the patients refused further treatment. Until a special torulacide is discovered, I would hesitate to use iodides in torulosis for the same reason that they are not used in tuberculosis. Their use in syphilis is to liberate the infecting organisms in order to facilitate the germicidal medication reaching them.

Early surgical removal of a circumscribed area of torulosis seems as logical to me as the early removal of carcinoma. Surgery is not indicated in torulosis of the central nervous system or in generalized pulmonary torulosis—such as in the case which is about to be reported—any more than surgery would be indicated in generalized carcinomatosis. The removal of a localized lesion either with the cautery or with the radio knife may well be considered as the treatment of choice.

REPORT OF CASE

A white American woman, aged 71, a widow of fourteen years and a semi-invalid for two or three years, complained chiefly of extreme lassitude of several weeks' duration following a chronic cough.

The family history revealed that the father, mother and sister each died with a cough of some years' standing, while but one brother was living and well, at the age of 77.

Her past history was essentially negative except for pneumonia twice about thirty years before and carbuncles on the neck about two years before.

The present illness started with a cough fifty years earlier following her riddance of a sick horse with a "runny" nose, which the patient used to ride in the Middle West. She had had pleurisy from time to time in both sides of the chest but there had been no night sweats or malaise until the past year or two. She had lost considerable strength and weight during the last year, during which the cough, malaise and pleurisy had become progressively worse.

The patient was wrinkled and had a dry skin; she was lying in the semi-Fowler position gasping for breath. Her throat was slightly injected, her chest poorly clothed, with decreased vocal fremitus on the left posteriorly, hyperresonant throughout, with subcrepitan râles over the entire chest. The heart sounds were distant but normal, with a slight enlargement to the left. There were no murmurs. The abdomen and pelvis were essentially normal. Reflexes were active and equal. There were no abnormal signs in the neuromuscular examination.

Sputum tests showed hyaline masses with indefinite radial striations in the fresh preparation. Stained sputum specimens showed many pus cells, a few gram-positive cocci in pairs and short chains and gram-positive "mycelial threads." Sputum cultures showed a profuse growth of salmon pink colonies on agar with a shiny surface identified as a pigmented torula or *Cryptococcus Kützing*. It is similar in cultural characteristics and appearance to *Cryptococcus pararoseus*, described by Castellani in 1926.

Two monkeys were inoculated with the same organism and killed for examination at the end of three months. This examination proved to be negative, which may indicate that the torula was nonpathogenic but, on the other hand, may indicate that the resistance of the monkeys to this particular organism was greater than that of the patient who died from it.

Roentgenograms of the lung showed thickening of the linear markings throughout with some parenchymal lesions in the right upper lobe and about the lung roots in both bases.

The urine showed a heavy trace of albumin with occasional granular casts, frequent epithelial, pus and blood cells, a few bacteria, and numerous mucous shreds. The blood counts were high, with 97 per cent hemoglobin, a color index of 88, 5,500,000 red blood cells and 15,400 white blood cells with 11 per cent small lymphocytes, 2 per cent large lymphocytes, 8 per cent transitional cells, 77 per cent polymorphonuclear neutrophils and 2 per cent staff cells.

The course was rapidly down-hill for four days, ending in a toxic and respiratory death, treatment having been symptomatic.

At autopsy, in addition to the usual manifestations of a cardiovascular-renal syndrome, which would be expected in a woman of 71, were found a right and a left chronic pleuritis with adhesions, a small cavity of the left upper lobe of the lung, healed tuberculous lesions of the right and left apices, abdominal adhesions, and mycotic bronchitis. In cross section the lung seemed filled throughout with a thick tenacious mucopurulent material, yellow with a slightly pinkish tint. Microscopic examination of the lung tissue showed round cell infiltration with areas of edema and interstitial fibrosis. The patient obviously died from the effects of a microscopic parasite in the bronchioles.

CONCLUSION

Whether the occasional pathogenesis of torulae depends on occasional variations in their own virulence, on the hypersensitivity, or on the lowered resistance of the persons affected is not yet proved. But it would appear from the facts in hand that both factors play a part. With the further development and greater popularity of surgery there is hope for more frequent and correct diagnoses if not for a greater percentage of cures.

595 East Colorado Street.

THE TREATMENT OF MENINGOCOCCIC
MENINGITIS WITH SULFANILAMIDE

PRELIMINARY REPORT

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AND

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A number of investigators have pointed out the therapeutic value of sulfanilamide (para-amino-benzene-sulfonamide) in infections due to the beta-hemolytic streptococcus. A review of this work will be found in

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the recent article of Long and Bliss.¹ Buttle and his co-workers² and Proom³ have also demonstrated protective and curative properties for the drug against meningococcic infections in mice. This paper will report the preliminary observations on the use of sulfanilamide in the treatment of ten cases of meningococcic meningitis and one of septicemia only. The ages of the patients ranged from 1 to 34 years. After the first two patients had been treated, the drug was used in every case admitted for meningococcic infection. There was therefore no selection of cases; they ranged in severity from moderate to severe illness.

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Summary of Results

Date	Spinal Fluid					Sulfanilamide*		Comment
	Cell Count	Per Cent of Polymorpho-nuclears	Globulin	Sugar	Culture	Intra-spinal, Cc.	Subcutane-ously, Cc.	
Case 1.—G. T., Negro man, aged 21								
12/31	21,000	..	4 plus	Positive	30	300	Critically ill, uncon-sci-ous; smear of spinal fluid showed many organisms; blood culture positive
1/ 1	21,000	80	4 plus	0	0	30	300	Constant improve-ment
	20,000	80	4 plus	0	0	30	300	
1/ 2	9,400	90	3 plus	0	0	25	300	
1/ 3	2,400	84	Trace	3 plus	0	30	270	
1/ 4	1,030	90	Trace	2 plus	0	30	270	Discharged well
1/ 6	840	90	Trace	1 plus	0	..	..
1/ 9	30	0	0	2 plus	0	..	..
2/ 1	..	..	..	..	..	..	..
Case 2.—E. W., white boy, aged 7 years								
1/ 9	11,000	92	1 plus	1 plus	Positive	30	100	Moderately ill
	5,600	..	1 plus	1 plus	Positive	20	75	Discharged well
1/10	2,750	..	1 plus	1 plus	0	10	100	
1/11	850	80	Trace	1 plus	0	17	70	
1/12	60	35	0	2 plus	0	30	70	
1/25	8	0	0	2 plus	0	Discharged well
2/12	..	..	..	..	..	..	..
Case 3.—L. W., Negro girl, aged 5 years								
1/14	9,500	82	2 plus	0	Positive	25	200	Moderately ill; blood culture sterile
1/15	2,400	85	1 plus	0	Positive	10	190	Discharged well
	2,500	90	4 plus	1 plus	Positive	15	185	
	4,800	70	2 plus	0	Positive	20	180	
1/16	3,500	90	2 plus	0	Positive	30	170	
1/17	1,200	75	1 plus	Trace	0	20	180	Discharged well
							200	
1/18	384	..	Trace	Trace	0	15	185	
1/19	..	..	..	..	..	..	200
2/ 3	2	20	0	2 plus	0	..	..
Case 4.—M. A., white boy, aged 2 years								
1/17	9,400	95	1 plus	0	Positive	20	80	Semiconscious; quite ill
1/18	8,200	95	1 plus	1 plus	Positive	25	75	Discharged well
	3,450	90	Trace	0	Positive	10	190	
1/19	830	80	Trace	2 plus	0	20	80	
1/20	485	40	Trace	2 plus	0	30	70	
1/21	108	25	Trace	2 plus	0	15	85	Transient arthritis in right ring finger
1/22	100	Discharged well
2/ 2	2	0	0	2 plus	0	..	..
2/ 7	..	..	..	..	..	..	..
Case 5.—J. C., Negro man, aged 34								
1/22	9,000	95	2 plus	0	Positive	30	270	Severely ill, semi-conscious
1/23	4,500	90	1 plus	0	Positive	28	272	Discharged well
	2,800	80	2 plus	0	0	20	280	
1/24	1,750	..	Trace	0	0	30	270	
1/25	1,775	75	1 plus	Trace	0	25	275	
1/26	300	Discharged well
2/ 9	60	0	Trace	1 plus	0	..	..
Case 6.—C. P., white boy, aged 10 years								
1/24	9,000	92	Trace	0	Positive	35	165	Moderately ill; blood culture sterile
1/25	11,000	..	Trace	0	0	30	170	Discharged well
	17,000	95	2 plus	0	0	25	175	
	12,200	95	1 plus	0	0	20	180	
1/26	..	..	..	..	..	..	..
Case 6.—C. P., white boy, aged 10 years—Continued								
1/26	3,650	90	Trace	0	35	175	Discharged well
1/27	..	..	..	..	..	..	200
1/29	99	..	Trace	0	.....	..	200
2/11	10	0	0	Trace	.....	..	..
Case 7.—R. B., Negro man, aged 23								
1/29	11,500	93	2 plus	1 plus	Positive	22	200	Moderately ill, consci-ous and coopera-tive; blood culture sterile
1/30	12,000	95	3 plus	0	Positive	30	270	Discharged well
	10,100	95	3 plus	0	Positive	30	270	
1/31	14,600	95	2 plus	Trace	0	25	275	
2/ 1	12,000	95	1 plus	Trace	0	25	275	
2/ 1	4,480	95	2 plus	Trace	0	20	180	Discharged well
							300	
2/ 2	1,880	82	1 plus	Trace	0	20	280	
2/ 3	..	..	..	..	..	..	300
2/ 9	26	0	Trace	1 plus	0	Discharged well
2/17	28	2	0	Trace	0	..	..
Case 8.—W. C., white woman, aged 28								
1/30	13,400	95	2 plus	0	Positive	25	275	Severely ill; semi-conscious; blood culture sterile
1/31	8,900	90	2 plus	Trace	0	30	230	Discharged well
	11,500	95	1 plus	Trace	0	25	275	
2/ 1	2,600	..	1 plus	Trace	0	20	280	
2/ 2	930	82	0	Trace	0	20	200	
2/17	11	0	0	1 plus	0	Discharged well
..	
Case 9.—E. M., Negro man, aged 27								
1/30	9,850	95	2 plus	0	Positive	25	275	Critically ill; blood culture sterile
1/31	22,200	95	3 plus	0	Positive	30	270	Discharged well
	11,000	98	3 plus	0	0	25	275	
2/ 1	3,350	95	Trace	Trace	Positive	20	270	
2/ 2	9,640	93	2 plus	0	0	20	280	
2/ 2	2,240	78	Trace	Trace	0	25	270	Pneumonia Died
2/ 4	158	68	1 plus	2 plus	0	..	300	
Case 10.—N. A., Negro girl, aged 9 years								
2/ 2	7,400	94	4 plus	0	0	20	180	Clinically meningococci meningitis; moderately ill
2/ 3	20,200	95	4 plus	Trace	0	20	180	Discharged well
	8,200	96	4 plus	Trace	0	20	180	
2/ 4	..	..	..	..	..	..	200
2/ 9	91	0	Trace	1 plus	0	..	..
2/19	42	14	0	1 plus	Discharged well
..	
Case 11.—C. C., white boy, aged 1 year								
1/30	6	0	0	1 plus	0	..	100	Severely ill; many petechiae; blood culture positive; two siblings died of fulminating menin-gitis day before
1/31	100	Discharged well
2/ 1	..	..	..	..	..	..	100
2/ 2	..	..	..	..	..	..	100
2/19	..	..	..	..	..	..	..

* Sulfanilamide was used in 0.8 per cent solution in physiologic solution of sodium chloride.

METHOD OF TREATMENT

Within the limitations of individual need, all patients were treated in the same manner, by subcutaneous and intraspinal injection of the drug. The solution was prepared in the following manner: A measured volume of sterile physiologic solution of sodium chloride was heated in a flask. When the saline began to boil, the flask was removed from the flame and a weighed amount of sulfanilamide was added in quantity to make an 0.8 per cent solution of the drug. The mixture was cooled to about 37 C. and injected immediately.

After a diagnosis of meningococcic meningitis had been made, sulfanilamide solution was injected intraspinally into the patient in amounts varying from 10 to 30 cc. As a general rule the amount injected was from 5 to 10 cc. less than the volume of spinal fluid removed. A larger amount of the solution was also given subcutaneously, approximately 100 cc. being injected for each 40 pounds (18 Kg.) of body weight. Both the intraspinal and subcutaneous treatments were repeated every twelve hours for the first two days and once each day thereafter until definite improvement was evident. In some instances subcutaneous injection of the drug was continued for several days longer than the intraspinal treatment.

RESULTS

The results are summarized in the accompanying table. Certain interesting facts are evident. In some cases the cell count of the spinal fluid fell rapidly and progressively. In others the count remained elevated for several days, then decreased precipitously. Culture of the spinal fluid of a number of patients was sterile after the first treatment; for others several treatments were required, but in no case was the organism recovered longer than three days after instigation of treatment. The speed of clinical improvement also varied from rapid to a more protracted return to normal. In two patients transient arthritis developed. There was one death. This patient (E. M., patient 9) was desperately ill at the time of admission, showed symptoms of encephalitic involvement and died of pneumonia on the fifth day despite the fact that the spinal fluid had been sterile for three days and the cell count was only 158 on the day of death.

No untoward effects following the use of sulfanilamide have been noted. When given subcutaneously the solution was rapidly absorbed and gave rise to no more tenderness or reaction at the site of injection than that which follows the subcutaneous administration of physiologic solution of sodium chloride. No signs of local or systemic reaction followed intrathecal injection. Although transient methemoglobinemia, sulfhemoglobinemia, mild acidosis and morbilliform rash have each occasionally occurred in patients treated with sulfanilamide for streptococcic infections, none of these conditions have been noted in the patients in this series.

COMMENT

There are obviously too few cases in this preliminary series to permit any very definite conclusions. The therapeutic response of the patients, however, to treatment with sulfanilamide seems quite comparable to that which usually follows treatment with specific antiserum. The mortality (9 per cent) in such a small series could have no real significance. On the other hand it is so much less than one would expect in cases treated only by repeated subarachnoid drainage that one cannot

escape the impression that sulfanilamide has some definite value in the treatment of meningococcic infections. Only with more widespread experience can the decision be reached whether the drug has sufficient therapeutic value to supplant antimeningococcus serum or whether it should be used only as an adjunct to serum treatment. One definite value of sulfanilamide over antimeningococcus serum is the absence of any irritative effect due to foreign protein. Certainly this property of serum, especially when it is injected into the subarachnoid space, gives rise to serious complications.

CONCLUSIONS

Sulfanilamide has been used in the treatment of ten patients with meningococcic meningitis and of one with septicemia only. The response to treatment was good in all the patients and seemed quite comparable to that caused by the specific antiserum.

Clinical Notes, Suggestions and New Instruments

ESOPHAGEAL OBSTRUCTION FROM A HYGROSCOPIC GUM LAXATIVE (SARAKA)

JOSEPH L. GOLDMAN, M.D., NEW YORK

Although intestinal obstruction from hygroscopic gum laxatives is a condition that has been observed many times, no record of esophageal obstruction from such a cause has been found in the recent literature. The widespread use of gum laxatives and the potential seriousness of esophageal obstruction caused by such a preparation warrant the report of the following case:

G. S., a man, aged 47, had been suffering from constipation for many years. He had found Saraka a beneficial laxative and had been taking this proprietary drug from three to four times a week for seven years. The company that markets the preparation directs that from 1 to 2 drachms of Saraka be taken after meals and washed down with sufficient water, or that the laxative be ingested with stewed fruit. The patient, however, was accustomed to take a much larger quantity of the Saraka than directed. He would place a handful of the laxative in his mouth and then swallow the substance with water.

According to the Council on Pharmacy and Chemistry of the American Medical Association, Saraka owes its activity to two elements, an indigestible gum called bassorin, which has the ability, like agar, of absorbing moisture and increasing greatly in bulk, and the drug frangula, which is practically identical with cascara.

On the evening of July 1, 1935, the patient in his usual manner placed a large handful of Saraka in his mouth and proceeded to wash this down with water. While drinking the water, he experienced laryngeal irritation and developed an attack of paroxysmal cough. After the cough had ceased he attempted to drink more water, but this precipitated violent retching and regurgitation of the fluid and particles of the Saraka. He soon began to experience a substernal ache, which became very severe during the night. It felt to him as though "tissues were tearing." Any further swallowing of water caused explosive reactions of retching and regurgitation, and marked pain. The patient could not assume a recumbent or semirecumbent position without increasing the pain considerably and experiencing a constricting and choking sensation.

The following morning, while traveling from his home in the country to his physician in New York, the late Dr. Herman Mond, the patient had to sit in a doubled-up position in order to tolerate the pain and distress. Dr. Mond made a fluoroscopic study of the esophagus with barium sulfate. He noted that the fluid stopped abruptly and completely at a distance of two-

From the Department of Laryngology of the Mount Sinai Hospital.

thirds the length of the esophagus and that the lower portion of the esophagus proximal to the obstruction was quite distended. I was consulted and immediately performed an esophagoscopy.

On esophagoscopy, the lower third of the esophagus was found impacted with a gelatinous, resinous substance, which had dilated the esophagus to twice its normal width. The material was in a solid mass and could not be aspirated. The mass was broken up by a punch forceps into small pieces, which were removed by forceps, suction and moist cotton swabs. No evidence of any neoplasm or cardiospasm was noted. The patient was not permitted to swallow any fluid until the following morning, at which time this was accomplished without any discomfort.

It is now a year and a half since the accident occurred, and the patient has experienced no esophageal symptoms of any kind. During this period he has been in good health.

The condition presented in this communication is very rare and may be attributed to carelessness on the part of the patient. It emphasizes a possible danger of the injudicious ingestion of hygroscopic gum laxatives and the importance of following exact directions. An esophageal impaction of this type may result in a tear of the esophageal wall from extreme dilatation or in a perforation from difficult instrumentation.

12 East Eighty-Sixth Street.

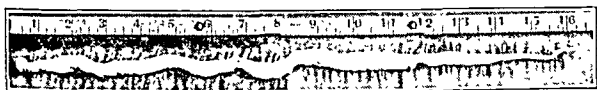
MEDICAL CURIOSITIES

P. T. GEYERMAN, M.D., HOT SPRINGS, S. D.

I realize that the relating of this case is of no particular scientific value, yet it must be of such rare occurrence that a brief report should be of interest to the medical profession. As far as I know, no similar case has ever been reported.

H. D., a man aged 44, single, a rancher, was referred to me by his family physician July 7, 1931, with a diagnosis of having a snake in the bladder. I obtained the following history from the patient: He had had bladder symptoms for about fifteen years, consisting of frequency and dysuria. There was nothing else in the urinary or general history of any importance.

Two days previously he had passed a small decapitated snake into the urethra and while doing this, he stated, it slipped from his grasp and passed into the bladder. The patient had a hypospadias but no evidence of any further trouble. General physical examination was negative. The patient was suffering from intense bladder pain and frequency of urination. Exam-



Length of snake taken from bladder of patient.

ination of the urine showed a large amount of pus and some blood cells and four plus albumin. The patient was very reticent about answering questions but on being questioned closely admitted having inserted the snake into the bladder, believing that it might give him relief from the bladder symptoms which he had complained of for a number of years.

A roentgenogram of the bladder revealed rather distinctly the vertebrae of the reptile. The next morning he was prepared for a probable cystotomy, with the thought in mind, however, that the snake might be removed through the cystoscope. He was given a spinal anesthetic and the cystoscope was passed. The cystitis was so intense that it required a good deal of irrigation before a clear cystoscopic view could be obtained. However, the snake soon came into view and the tail could be seen waving in the fluid. This was grasped by forceps and pulled into the cystoscope and held fast. As the snake was too large to be pulled through the instrument, the instrument and snake were pulled out together. The snake was what is commonly known as a "garter snake" and measured 18 inches (45.7 cm.) in length. The patient made an uneventful recovery and has had no further trouble.

This case is probably of more interest from the standpoint of sexual perversion than from any other angle.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
HOWARD A. CARTER, Secretary.

STATUS OF DIATHERMY AND SHORT WAVE DIATHERMY

Medical diathermy is the use, for therapeutic purposes, of heat generated in the body tissues by high frequency currents, insufficient in amount, however, to produce temperatures high enough to destroy the tissues or impair their vitality. These currents are applied locally by three methods: (1) with contact metal electrode, (2) with a high frequency alternating electric field electrode or (3) with a high frequency electromagnetic field coil.

The first method is the one by which conventional diathermy is applied. The frequency of oscillations is usually from one-half million to two million cycles per second.

The second method for the local application of diathermy currents is the use of a high frequency electric field. The frequency of oscillations may be from ten million to a hundred million cycles per second. The electrodes are not in contact with the skin, as conventional medical diathermy electrodes are. These short wave diathermy electrodes are made of metal insulated by rubber or felt. The electrodes are so encased as to prevent arcing from the metal to the skin. When applied they are usually separated from the skin by a half-inch layer of dry felt or towels. The towel or felt is placed between the electrodes and the skin to prevent the accumulation of surface moisture into small conducting areas, which might produce burns.

The methods of applying the electric field that have been accepted by the Council on Physical Therapy are those making use of double cuff electrodes and air-spaced electrodes. Ordinarily, cuffs are placed so that the part to be treated is midway between them. The double cuff method, according to the experiments submitted to the Council, always showed superior heating of the deep tissues of the human thigh over the pad electrode method. In fact, this mode of application of electric field electrodes was the only one in these experiments that insured better heating of the deep tissues than was obtained with conventional diathermy employing contact electrodes applied opposite each other. The Council has not accepted pad electrodes for use with the electric field method. Physicians buying short wave diathermy machines should consult the published acceptance of these machines regarding their relative efficiency, and furnished accessories.

Air spaced electrodes for use with the electric field have been accepted by the Council for certain techniques; for example, when placed on the same side of the part to be treated, and in some instances when applied on either side of the part.

The third method of heating tissues by high frequency currents is by electromagnetic fields, or so-called electromagnetic induction. In this method the current is carried to the patient through a flexible, heavily insulated cable, which is wound around the part to be treated in the form of coils or loops. The part under treatment is separated from the coil or loop by a towel for the reasons mentioned.

Burns may occur with any method of applying short wave medical diathermy as well as with the contact metal electrodes of conventional diathermy. The manufacturers of short wave machines claimed in their early advertising matter that burns were impossible. The Council was unable to accept these claims, since evidence was available that burns did occur.

To avoid burns, several layers of absorbent material are placed between the electrodes or coils and the skin, to absorb perspiration. The collection of moisture between the skin and the electrodes would cause a concentration of energy at these points, and burns would result if the patient did not inform the operator that there was a burning sensation. The patients who have been burned have had a distinct sensation of burning. This would be expected, as the subcutaneous tissues are always warmer than the deeper tissues directly under the electrodes. Such burns resemble those obtained by electrocoagulation and they are slow in healing.

The effects of common electric currents when applied to the body tissues may be thermal, chemical or mechanical in nature, depending on the physical characteristics of the current. High frequency currents apparently avoid the mechanical and chemical effects but display the ability to heat the body tissues through which they pass. At the present time it is believed that the local physiologic effects of the three methods of applying high frequency currents aforementioned are limited to the effects of the heat produced.

So far as competent investigators have been able to determine, there is no demonstrable, selective thermal action, or specific biologic or bactericidal actions in vivo that may be attributed to short wave diathermy. To date, the effects produced can be explained only on the basis of the generation of heat.

The conditions in which heat is a beneficial adjunct in treatment are to be found in the Handbook of Physical Therapy published by the American Medical Association.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIGITALIS (See New and Nonofficial Remedies, 1936, p. 168).

The following dosage forms have been accepted:

Tablets Digitalis Duo-Test McNeil, 1/2 grain: Each tablet contains 1/2 cat unit.

Tablets Digitalis Duo-Test McNeil, 1 grain: Each tablet contains 1/2 cat unit and is dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax-salol mixture and then sugar coated green.

Tablets Digitalis Duo-Test McNeil, 1 1/2 grains: Each tablet contains 1 cat unit and is dispensed in plain and enteric coated tablets. The enteric coated tablets are first coated with a wax-salol mixture and then sugar coated green.

Capsules Digitalis Duo-Test McNeil, 1 1/2 grains: Each capsule contains 1 cat unit and is dispensed in black capsules.

Prepared by the McNeil Laboratories, Inc., Philadelphia.

DIPHThERIA TOXOID, ALUM PRECIPITATED (REFINED) (See New and Nonofficial Remedies, 1936, p. 392).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Diphtheria Toxoid, Alum Precipitated.—Prepared by treating diphtheria toxoid with a solution of alum until complete precipitation is produced. The precipitate is thoroughly washed and then suspended in physiologic solution of sodium chloride. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health: guinea-pigs weighing 500 Gm., given one human dose, must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood. Ortho-chloro-mercuri phenol 1:20,000 is used as the preservative.

Marketed in packages of one 0.5 cc. vial and one 1 cc. vial; in packages of ten 0.5 cc. vials and ten 1 cc. vials; and in packages of one 5 cc. vial and one 10 cc. vial.

AMINOPYRINE (See New and Nonofficial Remedies, 1936, p. 340).

Aminopyrine—"National."—A brand of aminopyrine—U. S. P.

Manufactured by the National Aniline and Chemical Co., New York.
Aminopyrine Tablets, 5 grains.

COD LIVER OIL (See New and Nonofficial Remedies, 1936, p. 450).

Möller Plain Cod Liver Oil Standardized.—It has a vitamin A potency of not less than 1,000 units (U. S. P.) per gram and a vitamin D potency of not less than 150 units (U. S. P.) per gram.

Dosage.—For adults, 4 cc. (60 minims) to 15 cc. (225 minims) three times a day; for children, 2 cc. (30 minims) to 4 cc. (60 minims) three times a day.

Manufactured by Peter Möller, A/S, Oslo, Norway; distributed in the United States by Schieffelin & Co., New York. No U. S. patent or trademark.

Möller plain cod liver oil standardized complies with the U. S. P. standards for cod liver oil. In addition it is required to have a vitamin A potency of not less than 1,000 units per gram and a vitamin D potency of not less than 150 units per gram.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

BLUE LABEL TOMATO JUICE

Manufacturer.—Curtice Brothers Company, Inc., Rochester, N. Y.

Description.—Canned tomato juice seasoned with salt, retaining in high degree the natural vitamins.

Manufacture.—Varieties of ripe tomatoes meeting specific requirements are inspected, mechanically washed, scalded, hand trimmed and cored. The juice is mechanically expressed, heated, and seeds and skins are removed. The juice is seasoned with salt, filled into cans at 82 C. and processed for twenty minutes at 82 to 85 C.

Analysis (submitted by manufacturer).—Moisture 92.9%, total solids 7.1%, ash 0.9%, sodium chloride (NaCl) 0.6%, fat (ether extract) trace, protein (N \times 6.25) 1.1%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 4.9% and total acid as citric 0.5%.

Calories.—0.2 per gram; 6 per ounce.

Vitamins.—Approximately 74 International units vitamin C per fluidounce.

SEXTON BRAND RED PITTED CHERRIES, JUICE PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned cherries, packed in juice.

Manufacture.—Cherries, picked without stems, are washed, inspected, mechanically pitted, automatically filled into cans and weighed. The cans are filled with juice, exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 87.4%, total solids 12.6%, ash 0.48%, fat (ether extract) 1.0%, protein (N \times 6.25) 1.0%, crude fiber 0.14%, carbohydrates other than crude fiber (by difference) 10.0%.

Calories.—0.53 per gram; 15 per ounce.

Claims of Manufacturer.—For diets in which sweetened fruit is proscribed.

SEXTON BRAND FRESH GREEN ASPARAGUS, WATER PACKED

Manufacturer.—John Sexton & Company, Chicago.

Description.—Canned green asparagus, packed in water.

Manufacture.—Green asparagus, harvested when spears are from 5 to 8 inches above ground, is washed, sorted for quality and size, cut uniformly, again washed, sorted, mechanically cut, washed again in cold, hot and cold waters, again inspected and placed in cans. The cans are inspected for grading, counts and proper quality, filled with water, exhausted, sealed and processed.

Analysis (submitted by manufacturer).—(Analysis of entire contents including liquid): moisture 93.7%, total solids 6.3%, ash 0.49%, fat (ether extract) 0.2%, protein (N \times 6.25) 2.3%, crude fiber 0.41%, carbohydrates other than crude fiber (by difference) 2.9%.

Calories.—0.3 per gram; 9 per ounce.

Claims of Manufacturer.—Choice quality asparagus packed in water without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

NORRIS BRAND EVAPORATED MILK

Distributor.—Schuylkill Valley Grocery Co., Inc., Norris-town, Pa.

Packer.—Amboy Milk Products Company, Amboy, Ill.

Description.—Canned, evaporated milk; the same as Amboy Brand Unsweetened Evaporated Sterilized Milk (THE JOURNAL, May 7, 1932, p. 1655).

MEDICAL LICENSURE STATISTICS FOR 1936

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The Council on Medical Education and Hospitals presents herewith medical licensure statistics for the thirty-fifth consecutive year. The report covers the year 1936 and deals with statistics regarding (a) medical licensing boards of the United States, including the District of Columbia and territories and possessions of the United States, (b) boards of examiners in the basic sciences, and (c) the National Board of Medical Examiners.

Official reports have been contributed by the officers of the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands; the homeopathic examining boards of Arkansas, Connecticut, Delaware, Louisiana and Maryland; the eclectic examining board in Arkansas; the ten basic science examining boards in operation (Arizona, Arkansas, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin), and the National Board of Medical Examiners. The homeopathic boards of Arkansas and Louisiana and the eclectic board in Arkansas did not license any one during the year. Acknowledgment is tendered the officers of the foregoing boards for their ready cooperation and the complete reports they have furnished.

Reports of all examinations and those licensed without examination are carefully compared with lists of graduates furnished by medical school officials, so that errors in regard to names of applicants, the medical schools or the years of graduation are promptly corrected. In the occasional instance in which the applicant has not graduated or there is a record of irregularity, the state board is promptly notified. Credentials of physicians coming from abroad are verified by direct correspondence with the foreign medical schools. Thus the statements regarding the medical education and licensure of all physicians are known to be accurate.

The data supplied were also entered in the biographic file of physicians and others maintained by the American Medical Association, thus serving a dual purpose. About thirty licensing boards obtain from the American Medical Association verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all licensing boards.

The tables showing medical licensing boards results include figures regarding the number of candidates for medical licensure in 1936, the number licensed and the number added to the profession.

LICENTIATES

The first table contains figures on the number of licenses issued in the various states, territories and possessions during the year. There were 9,008 licenses issued, 6,263 on the basis of examination and 2,745 by endorsement of credentials. In several states (table 9) the internship is a requisite for practice, but a physician is permitted to take the examination and if successful his license is withheld until completion of his internship. Licenses are also withheld for lack of citizenship or minor technicalities. The figures, therefore, for those

licensed after examination include many who were examined in 1935 and even a few in previous years. New York issued the largest number of licenses, 1,517, Pennsylvania issued 629, Illinois 577, California 567, Ohio 464, Massachusetts 352 and Texas 325. A comparison with similar figures for 1935 indicates that in New York 243 more licenses were issued, in Pennsylvania 104, Illinois 52, California 95, Ohio 48, Massachusetts 89 and Texas 6.

TABLE 1.—Licentiates—1936

	Licensed on Basis of		
	Examina- tion	Reciprocity and Endorsement	Total
Alabama.....	23	48	71
Arizona.....	26	41	67
Arkansas.....	46	13	59
California.....	370	197	567
Colorado.....	79	40	119
Connecticut.....	80	62	142
Delaware.....	17	8	25
District of Columbia.....	32	44	76
Florida.....	154	..	154
Georgia.....	89	21	110
Idaho.....	12	30	42
Illinois.....	469	108	577
Indiana.....	122	43	165
Iowa.....	85	43	128
Kansas.....	97	30	127
Kentucky.....	93	45	138
Louisiana.....	150	19	169
Maine.....	53	10	63
Maryland.....	252	25	277
Massachusetts.....	273	79	352
Michigan.....	207	82	289
Minnesota.....	191	27	218
Mississippi.....	23	14	37
Missouri.....	209	70	279
Montana.....	15	32	47
Nebraska.....	75	21	96
Nevada.....	..	13	13
New Hampshire.....	22	15	37
New Jersey.....	168	129	297
New Mexico.....	3	47	50
New York.....	932	585	1,517
North Carolina.....	64	45	109
North Dakota.....	14	9	23
Ohio.....	324	140	464
Oklahoma.....	62	37	99
Oregon.....	49	22	71
Pennsylvania.....	539	90	629
Rhode Island.....	30	11	41
South Carolina.....	32	9	41
South Dakota.....	15	6	21
Tennessee.....	184	34	218
Texas.....	176	149	325
Utah.....	23	12	35
Vermont.....	26	14	40
Virginia.....	106	53	159
Washington.....	58	45	103
West Virginia.....	39	29	68
Wisconsin.....	111	67	178
Wyoming.....	1	19	20
U. S. Terr. and Possessions*.....	23	13	36
Totals.....	6,263	2,745	9,008

* Alaska, Canal Zone, Hawaii, Puerto Rico, and Virgin Islands.

Six states licensed between 200 and 300 licentiates and thirteen between 100 and 200. Twenty-two states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico and the Virgin Islands licensed less than 100. None were licensed by examination in Nevada. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. The total number licensed, 9,008, was 1,104 more than in 1935. Licensed on the basis of examination, the figure increased 549 and those licensed without examination increased 555. This figure, however, does not represent 9,008 individuals.

(CONTINUED ON PAGE 1414)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
1 Baylor University College of Medicine.....		1	1	5	0				2	0		1	0		1	0	1	0		1	0	1
2 University of Texas School of Medicine.....				1	0				1	0								1	0			1
3 University of Vermont College of Medicine.....						1	1											2	0		2	0
4 Medical College of Virginia.....				1	0		1	0		3	1		1	0						1	0	2
5 University of Virginia Department of Medicine...				1	0			1	0	2	2						1	0		1	0	3
6 Marquette University School of Medicine.....				3	1	1	0					1	0	2	0				1	0		3
7 University of Wisconsin Medical School.....		1	0	4	0							3	0				1	0		1	0	2
8 Dalhousie University Faculty of Medicine.....																						1
9 Laval University Faculty of Medicine.....						0	1													0	1	
10 McGill University Faculty of Medicine.....			2	0		1	0					3	0				7	0	1	0	6	1
11 Queen's University Faculty of Medicine.....						1	0		0	1				2	0				1	0	1	0
12 University of Alberta Faculty of Medicine.....																						0
13 University of Manitoba Faculty of Medicine.....												1	0									2
14 University of Montreal Faculty of Medicine.....						0	1											1	0		0	1
15 University of Toronto Faculty of Medicine.....			1	0			1	0		3	1		3	0		1	0			1	0	3
16 University of Western Ontario Medical School...									0	1												0
17 Foreign Medical Faculties.....	1	2		8	3	5	0	2	5		1	1		1	0	17	2		5	0	5	0
18 Extinct Medical Schools.....	0	1		0	1					6	8		1	1				0	1	1	0	1
19 Unapproved Schools and Undergraduates.....		0	2			16	1	1	5		1	0		84	2					89	191	
20 Totals.....	27	35	46	387	80	106	17	33	193	89	13	477	118	103	96	84	134	53	236	510	238	122
21 Totals—Examined—Passed.....	23	26	46	369	79	76	17	32	154	89	13	471	118	0	103	96	84	133	53	202	271	238
22 Totals—Examined—Failed.....	4	9	0	18	1	30	0	1	44	0	0	6	0	0	0	0	1	0	34	239	0	1
23 Percentage Failed.....	14.8	25.7	0.0	4.7	1.2	28.3	0.0	3.0	22.2	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.7	0.0	14.4	46.9	0.0	0.8
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1411)

since several have been licensed in more than one state during the year. Nor does it represent additions to the medical profession at large, since the 2,745 licensed by endorsement, with the exception of those licensed in New York on the basis of foreign credentials, have migrated from other states. Table 5 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TOTAL EXAMINED

Figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state, are included in table 2. There were 6,906 examined, of whom 6,210 passed and 696 failed, representing graduates from the sixty-seven approved four year medical schools in the United States and nine in Canada, seventy-three medical schools of other countries, eighteen medical schools now extinct, ten unapproved institutions and several osteopathic colleges. Five undergraduates were examined. Osteopaths granted the privilege to practice medicine, surgery or both by the medical board are included in these statistics. There were 5,705 graduates of approved medical schools in the United States examined, of whom 4.3 per cent failed; 128 graduates of approved Canadian medical schools, 12.5 per cent of whom failed; 588 graduates of schools outside the United States and Canada with 35.4 per cent failures; 25 who graduated from schools now extinct with 48.0 per cent of failures, and 460 from unapproved and osteopathic schools, of whom 47.0 per cent failed. These 460 candidates represented 107 graduates of osteopathic schools, of whom 43 passed and 64 failed, 59.8 per cent; 348 graduates of unapproved schools, of whom 201 passed and 147, 42.2 per cent, failed and five undergraduates examined, all failed.

Four of these undergraduates were permitted to be examined in Mississippi by special acts of the legislature and the fifth was examined in New York. This individual claimed graduation from a foreign medical school but his claims have not been substantiated by official correspondence. Graduates of osteopathic schools were examined in Colorado, Connecticut, Massachusetts, New Jersey, Texas and Wisconsin, while graduates of unapproved schools were examined in Arizona, Florida, Illinois, Massachusetts, Missouri, New Jersey, New Mexico, North Carolina, Ohio and Hawaii. Illinois registered eighty-four, Massachusetts seventy-seven and Ohio thirty-one practitioners of the latter group.

The 6,906 examined do not represent individuals, since a candidate might take the examination in more than one state and would be counted in each state. This applies to those who pass or fail, or those who fail and later pass in one or more states or pass in one state and later within the same year fail elsewhere. However, if a physician fails more than once in a given state within the year he is counted in that state only once as a failure.

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined twenty-eight candidates, all of whom passed. The homeopathic boards of Arkansas and Louisiana did not license any one during the year. The one eclectic board in existence in Arkansas did not examine any candidates.

The largest number of graduates of any one school examined was 193 from Northwestern University Medical School, who were examined by twenty-eight licensing boards. There were 190 graduates of Rush Medical College examined by twenty-seven boards. The next highest number of graduates of any one school was Jefferson Medical College, which had 185 graduates examined by twenty-three boards. The

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions*	Totals	Examined—Passed	Examined—Failed	Percentage Failed	No. Boards Examined by Marginal Number	
P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
1	0							1	0			2	0						74	4								96	91	5	5.2	12 61	
														2	0				73	2	1	0						84	82	2	2.4	7 62	
						1	0		3	2											29	0						41	38	3	7.3	6 63	
								4	4	5	0				1	0						47	0		14	0		85	80	5	5.9	11 64	
									1	0					1	0						49	0		5	0		68	65	3	4.4	10 65	
		1	0					2	2		1	0		2	0		1	0			1	0			41	0		67	64	3	4.5	14 66	
		2	0					1	0			1	0	1	0		3	0					2	0		28	0	54	54	0	0.0	15 67	
								1	0			1	0		1	0											1	5	5	0	0.0	5 68	
					1	0			2	0					0	1												6	3	3	50.0	5 69	
					5	0	0	1		11	2	1	0	1	0							2	0		2	0		54	50	4	7.4	17 70	
								10		2				4	0	2	0										1	20	17	3	15.0	9 71	
								1	0																		1	1	0	0.0	1 72		
										1	0																4	4	0	0.0	3 73		
						0	1		1	0					1	0											6	3	3	50.0	6 74		
								1	0						1	0								2	0		22	21	1	4.5	12 75		
		1	0					4	1						2	0								1	0		10	8	2	20.0	5 76		
		3	1			2	0	18	3		217	139		10	2	1	0		10	0	1	1	0				0	588	380	208	35.4	29 77	
											1	0			2	0											25	13	12	48.0	10 78		
		0	4	0	1			5	1	1	0		31	0					11	8							3	460	244	216	47.0	16 79	
20	26	205	15	75	0	22	174	3	1,181	64	14	314	70	47	542	29	32	15	179	197	23	38	106	59	59	111	1	33	6,906				80
21	22	202	15	75	0	22	168	3	932	64	14	312	70	47	541	22	32	15	178	176	23	38	106	58	59	110	1	21		6,210			81
22	4	3	0	0	0	0	0	0	249	0	0	2	0	0	1	7	0	0	1	21	0	0	0	1	0	1	0	12		696			82
3	15.4	1.5	0.0	0.0	0.0	0.0	3.4	0.0	21.1	0.0	0.0	0.6	0.0	0.0	0.2	24.1	0.0	0.0	0.6	10.7	0.0	0.0	0.0	1.7	0.0	0.9	0.0	36.4				10.1	83
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

P = Passed; F = Failed.

* Alaska, Hawaii, Puerto Rico.

New York Medical College and Flower Hospital and Georgetown University School of Medicine had the highest percentage of failures in the United States, 22.5 and 21.8, respectively. Graduates of Harvard University Medical School were examined by twenty-nine boards, Northwestern University Medical School by twenty-eight, Rush Medical College by twenty-seven, the University of Pennsylvania School of Medicine by twenty-five, Jefferson Medical College by twenty-three and Creighton University School of Medicine by twenty-one boards. From those statistics it might be inferred that these schools educate more non-residents than do other schools. Graduates of Albany Medical College (twenty-nine) were examined by two state boards, one of which was New York, where the college is located. Graduates of the University of California Medical School (fifty-nine) were examined in three states.

Canadian graduates took the test in twenty-five states and Puerto Rico. The greatest number, fifty-four, represented McGill University Faculty of Medicine, who were examined in seventeen states; twenty-two graduates of the University of Toronto Faculty of Medicine were examined in twelve states, and twenty graduates of Queen's University Faculty of Medicine were examined in nine states. The six graduates of the University of Montreal Faculty of Medicine were examined in six states. The highest percentage of failures was 50, representing, respectively, Laval University Faculty of Medicine and the University of Montreal Faculty of Medicine.

The following fourteen schools had no failures before state licensing boards: University of Southern California School of Medicine, Yale University School of Medicine, State University of Iowa College of Medicine, Louisiana State University Medical Center, Wayne University College of Medicine, Duke Univer-

sity School of Medicine, Ohio State University College of Medicine, University of Oklahoma School of Medicine, University of Oregon Medical School, Vanderbilt University School of Medicine, University of Wisconsin Medical School, Dalhousie University Faculty of Medicine, University of Alberta Faculty of Medicine and the University of Manitoba Faculty of Medicine.

In 1935, 6,428 were examined, of whom 5,843 passed and 9.1 per cent failed, as compared with 6,906 examined in 1936, of whom 6,210 passed and 10.1 per cent failed. There were 478 more examined than in 1935, of whom 367 passed and 111 failed.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The number of physicians granted licenses to practice medicine and surgery without examination in the states and territories are given in table 4. These individuals presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or other credentials.

Definite reciprocal agreements exist in many of the states, but twenty-eight states and the District of Columbia register without examination licentiates who present credentials which correspond to those required by their respective states at the time such licenses were issued. These are:

Alabama	Michigan	Oklahoma
Arizona	Minnesota	Oregon
California	Missouri	Pennsylvania
Colorado	Nevada	South Carolina
Connecticut	New Hampshire	South Dakota
Delaware	New Jersey	Texas
District of Columbia	New Mexico	Utah
Idaho	New York	Vermont
Maine	North Carolina	Wisconsin
Maryland		

Arizona (at the discretion of the board), California (when ten or more years has intervened between the

(CONTINUED ON PAGE 1419)

TABLE 3.—Candidates Licensed by Reciprocity and Endorsement—1936

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Terr. & Poss.*																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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TABLE 4.—*Credentials Presented by Physicians for Licensure by Reciprocity and Endorsement—1936*[illegible]

* Alaska, Canal Zone, Hawaii, Puerto Rico, Virgin Islands.

(CONTINUED FROM PAGE 1415)

date of filing an application for a California license and the date of the original license), Connecticut, Illinois, Maryland, Minnesota, Nevada, North Carolina, South Dakota and Washington require a practical or oral examination of reciprocity or endorsement applicants before a license is granted by this method. Applicants in Idaho are required to pass either a written or an oral examination in medical jurisprudence as pertaining to practice in that state. Those desiring licenses in Arizona, Arkansas, Connecticut, the District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure.

Florida, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state. Massachusetts and Rhode Island, however, will register diplomates of the National Board of Medical Examiners by endorsement. Rhode Island requires such diplomates to pass an oral examination.

New York granted the greatest number of licenses by endorsement in 1936 (585), California was second with 197, Ohio third with 140, New Jersey fourth with 129, Texas fifth with 115 and Illinois sixth with 108. All other states licensed fewer than 100. The largest group representing the same type of credentials were the 540 diplomates of the National Board of Medical Examiners; the next greatest number (216) were from Canadian and foreign countries; Illinois was third with 162, Missouri fourth with 146, and Maryland fifth with 127. Only 122 New York licenses were endorsed during the year, while 585 were licensed in New York on the basis of credentials. Of the latter, 216 were registered on the basis of Canadian and foreign licenses or diplomas giving the right to practice in the country in which issued. However, at a meeting of the New York State Board of Regents, Sept. 21, 1936, it was voted that on applications filed after October 15 no license issued by a legally constituted board of examiners in any foreign country will be endorsed until the applicant shall pass the licensing examination prescribed by law or regents' rule.

Nine physicians were licensed on the basis of Canadian provincial credentials, all in New York. Credentials were presented from Alberta, British Columbia and Nova Scotia, one each, and six were from Ontario. New York was the only state in which physicians were registered by endorsement of European credentials. There were 207 so licensed, representing the following countries: Australia one, Austria eleven, Belgium one, Dominican Republic one, England one, France one, Great Britain one, Germany 182, Holland one, Hungary two, Italy two, Russia two and Switzerland one. Two physicians were registered in California by the endorsement of certificates from Hawaii and three in New York on the basis of licenses issued in Puerto Rico.

Not included in the table are forty-three osteopaths licensed by the board of medical examiners in three states; namely, thirty-four granted the right to practice medicine and surgery in Texas, five licensed to practice osteopathy and surgery in Wisconsin, and four also licensed to practice osteopathy and surgery in Wyoming.

Diplomates of the National Board of Medical Examiners were registered in forty-one states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

Missouri licentiates (146) were registered in thirty-four states, while the state that had the highest number of its licenses endorsed, Illinois had its 162 licentiates registered in thirty-three states, twenty-five of whom went to Michigan, twenty-one to California, seventeen to Wisconsin and thirteen to Texas. Maryland had the greatest number of its licentiates registered in any one state, fifty-five, who were given the right to practice in New York; fifty-one licentiates of New York went to New Jersey; Arizona, Connecticut, Delaware, District of Columbia, Florida, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Rhode Island,

TABLE 5.—*Licentiates Representing Additions to the Medical Profession—1936*

	Examina- tion	Endorse- ment	Total
Alabama.....	21	2	23
Arizona.....	12	4	16
Arkansas.....	45	1	46
California.....	330	9	339
Colorado.....	75	5	80
Connecticut.....	61	26	87
Delaware.....	9	3	12
District of Columbia.....	24	4	28
Florida.....	27	0	27
Georgia.....	86	1	87
Idaho.....	6	0	6
Illinois.....	443	20	463
Indiana.....	119	1	120
Iowa.....	82	3	85
Kansas.....	90	2	92
Kentucky.....	92	4	96
Louisiana.....	136	0	136
Maine.....	41	2	43
Maryland.....	246	5	251
Massachusetts.....	205	63	268
Michigan.....	196	0	196
Minnesota.....	133	6	139
Mississippi.....	21	0	21
Missouri.....	202	7	209
Montana.....	10	1	11
Nebraska.....	75	1	76
Nevada.....	0	1	1
New Hampshire.....	22	3	25
New Jersey.....	149	5	154
New Mexico.....	3	1	4
New York.....	876	324	1,200
North Carolina.....	61	6	67
North Dakota.....	4	2	6
Ohio.....	316	14	330
Oklahoma.....	56	0	56
Oregon.....	46	2	48
Pennsylvania.....	472	24	496
Rhode Island.....	19	8	27
South Carolina.....	30	0	30
South Dakota.....	4	1	5
Tennessee.....	184	4	188
Texas.....	173	35	208
Utah.....	22	1	23
Vermont.....	22	0	22
Virginia.....	105	1	106
Washington.....	42	10	52
West Virginia.....	33	3	36
Wisconsin.....	100	3	103
Wyoming.....	0	3	3
U. S. Territory and Possession*.....	12	7	19
Totals.....	5,538	628	6,166
Totals for 1935.....	5,096	411	5,507

* Hawaii, Puerto Rico.

South Dakota, Vermont, West Virginia, Wyoming, Hawaii and Puerto Rico had less than ten of their licentiates endorsed to other states and Idaho had none.

A total of 2,702 physicians secured licenses by this method during 1936.

In table 3, the 2,702 physicians licensed by reciprocity and endorsement and, in addition, forty-three osteopaths so licensed, are recorded by school of graduation and state or territory where licensed. All the existing United States four-year medical schools and eight medical schools of Canada were represented. The largest number of graduates of any one school were from Harvard University Medical School, 116; Washington University School of Medicine had 79 licensed by this method; St. Louis University School of Medicine 77, Rush Medical College 73 and Johns Hopkins

University School of Medicine had 70. Graduates of 44 foreign medical faculties and five licensing corporations of England and Scotland, 36 extinct medical schools and four unapproved institutions, and several

graduates of foreign medical faculties registered, 84 from extinct medical schools and 62 graduates of unapproved schools.

TABLE 6.—*Licentiatees Representing Additions to the Medical Profession Grouped in Geographic Divisions—1936*

	Examina- tion	Endorse- ment	Total
New England			
Maine.....	41	2	43
New Hampshire.....	22	3	25
Vermont.....	22	0	22
Massachusetts.....	205	63	268
Rhode Island.....	19	8	27
Connecticut.....	61	26	87
	370	102	472
Middle Atlantic			
New York.....	876	324	1,200
New Jersey.....	149	5	154
Pennsylvania.....	472	24	496
	1,497	353	1,850
East North Central			
Ohio.....	316	14	330
Indiana.....	119	1	120
Illinois.....	443	20	463
Michigan.....	196	0	196
Wisconsin.....	100	3	103
	1,174	38	1,212
West North Central			
Minnesota.....	123	6	139
Iowa.....	82	3	85
Missouri.....	202	7	209
North Dakota.....	4	2	6
South Dakota.....	4	1	5
Nebraska.....	75	1	76
Kansas.....	20	2	22
	590	22	612
South Atlantic			
Delaware.....	0	3	12
Maryland.....	246	5	251
District of Columbia.....	24	4	28
Virginia.....	105	1	106
West Virginia.....	33	3	36
North Carolina.....	61	6	67
South Carolina.....	30	0	30
Georgia.....	83	1	84
Florida.....	27	0	27
	621	23	644
East South Central			
Kentucky.....	92	4	96
Tennessee.....	184	4	188
Alabama.....	21	2	23
Mississippi.....	21	0	21
	318	10	328
West South Central			
Arkansas.....	45	1	46
Louisiana.....	136	0	136
Oklahoma.....	56	0	56
Texas.....	175	35	210
	410	36	446
Mountain			
Montana.....	10	1	11
Idaho.....	6	0	6
Wyoming.....	0	3	3
Colorado.....	75	5	80
New Mexico.....	3	1	4
Arizona.....	12	4	16
Utah.....	22	1	23
Nevada.....	0	1	1
	128	16	144
Pacific			
Washington.....	42	10	52
Oregon.....	46	2	48
California.....	320	9	329
	408	21	429
Territory and Possession			
Hawaii.....	4	6	10
Puerto Rico.....	6	1	7
	12	7	19
Totals.....	5,258	625	6,166

CANDIDATES ADDED TO THE PROFESSION

The number of licentiatees added to the profession during 1936 are given in table 5. The figures represent candidates examined in 1936 and licensed; also those examined in previous years whose licenses were withheld and issued in 1936, those certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials, and miscellaneous. In the main they represent recent graduates. Altogether, 6,166 were added to the profession, as contrasted with approximately 4,000, the number removed by death in 1936. These figures indicate that at least 1,500 have been added to the already overcrowded medical profession. It is assumed that by far the great majority of those licensed are in practice. It is interesting to note that, of 9,008 licenses issued throughout the year, 6,166, 68.5 per cent, are actual additions to the medical profession.

TABLE 7.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Rhode Island
Arkansas	Michigan	South Carolina
Colorado	Minnesota	South Dakota
District of Columbia	Mississippi	Tennessee
Florida	Montana	Texas
Georgia	Nevada	Utah
Idaho	New Hampshire	Vermont
Illinois	New Jersey	Virginia
Indiana	New Mexico	Washington
Iowa	New York	West Virginia
Kansas	North Carolina	Wisconsin
Kentucky	North Dakota	Wyoming
Louisiana	Oklahoma	
One Year of College		
California	Connecticut	Pennsylvania
High School Graduation or its Equivalent		
Delaware	Missouri	Ohio
Massachusetts	Nebraska	

The largest number added to the profession was in New York, 1,200; Pennsylvania added 496 and Illinois 463, while Nevada added one. Of the number of licentiatees representing additions to the medical profession during 1936, 5,538 secured this privilege by examination and 628 by the endorsement of credentials, the greatest majority of which (324) were licensed in New York State and represent graduates of foreign medical schools licensed on the basis of their credentials and diplomates of the National Board of Medical Examiners. In 1935 there were 5,096 added by means of examination and 411 by endorsement of credentials, a total of 5,507. In 1936 there were 659 more added than in 1935. No additions were made to the physician population of Alaska, Canal Zone or the Virgin Islands, while nineteen were added in Hawaii and Puerto Rico. Table 6 records the licentiatees representing additions to the medical profession, by sections of the country. The largest number (1,850) was added to the Middle Atlantic group and the fewest number to the Mountain division, 144.

STATE REQUIREMENTS OF PRELIMINARY TRAINING

The minimum requirement of preliminary education exacted by the Council on Medical Education and Hospitals since 1918 has been two years of college work. There are still eight states, however, which have not

osteopathic schools were licensed without examination. Thirty-four osteopaths were granted the right to practice medicine and surgery in Texas and five and four, respectively, permitted the privilege of practicing surgery in Wisconsin and Wyoming. There were 264

revised or amended their statutes to conform with this prerequisite, although these states with possibly one or two exceptions do not license other than graduates of approved schools. Table 7 records the premedical training required in each state.

REQUIRED HOSPITAL INTERNSHIPS

In tables 8 and 9 are listed the medical schools and state licensing boards now requiring internships for the M.D. degree and state licensure respectively. Some

TABLE 8.—Internship Required by Medical Schools

United States	Effective Date
College of Medical Evangelists.....	1927
Stanford University School of Medicine.....	1919
University of California Medical School.....	1910
University of Southern California School of Medicine.....	1933
Loyola University School.....	1922
Northwestern University.....	1920
University of Illinois Col.....	1922
Louisiana State University Medical Center.....	1934
Wayne University College.....	1924
University of Minnesota.....	1915
Duke University School o.....	1932
University of Cincinnati College.....	1926
Marquette University School of.....	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

* Requires a two-year internship.

medical schools will accept research or other clinical work in lieu of the internship. The effective date of the requirement is shown in both tables. Thirteen schools in the United States and four in Canada exact the internship requisite. The M.D. degree has been conditioned on an internship at the University of Minnesota Medical School since 1915. Rush Medical College, which has required the internship for the M.D. degree since 1919 and the School of Medicine of the Division of the Biological Sciences, University of Chicago, discontinued this requirement in 1936.

As revealed in table 9, seventeen states, Alaska and the District of Columbia require that applicants for licensure possess a hospital internship. The first state exacting the internship was Pennsylvania in 1914 and the last one Vermont, affecting the graduates of 1934 and thereafter.

While some of the medical schools and licensing boards may have their own list of hospitals recommended for intern training, generally the Council's list of hospitals approved for internships is followed.

TABLE 9.—Internship Required by Medical Licensing Boards

Effective Date	Effective Date
Alaska.....1917	Pennsylvania.....1914
Delaware.....1924	Rhode Island.....1917
District of Columbia.....1930	S. C. P. A.
Illinois.....1923	U. S.
Iowa.....1924	Vermont.....1934
Michigan.....1922	Washington.....1919
New Jersey.....1916	West Virginia.....1939
North Dakota.....1918	
Oklahoma.....1933	
Oregon.....1933	

passed 4,109 candidates, Pennsylvania 2,385, Illinois 1,991, California 1,584, Ohio 1,423, Michigan 1,119 and Massachusetts 1,101. All other states passed less than 1,000. Eleven states passed less than 100 and New Mexico and Wyoming only nine. The percentage of candidates who failed in the examinations in the past five years is given in the last column. The proportion of failures in all states has increased from 7.6 per cent in 1932 to 10.1 per cent in 1936. In the five year period, 46.5 per cent of the applicants failed in Massachusetts. The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of

TABLE 10.—Candidates Examined—1932-1936, Inclusive

	1932		1933		1934		1935		1936		Totals for 5 Years		
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Percentage Failed
Alabama.....	14	0	11	0	20	0	37	0	23	4	105	4	3.7
Arizona.....	13	2	9	1	7	2	8	2	26	9	64	16	20.0
Arkansas.....	43	0	44	1	53	0	42	0	46	0	238	1	0.4
California.....	290	15	294	13	303	16	328	14	369	18	1,584	76	4.6
Colorado.....	59	33	60	0	66	2	59	1	79	1	321	7	2.1
Connecticut.....	68	12	63	15	70	12	63	13	76	30	340	82	18.4
Delaware.....	6	0	18	1	14	7	13	5	17	0	68	13	16.0
Dist. of Columbia	43	1	39	1	50	1	43	1	32	1	207	5	2.4
Florida.....	66	6	80	3	105	27	135	24	154	44	540	104	16.2
Georgia.....	100	0	88	1	80	0	88	2	89	0	445	3	0.7
Idaho.....	5	0	5	0	13	0	7	1	13	0	43	1	2.3
Illinois.....	360	23	369	14	368	13	423	10	471	6	1,991	71	3.4
Indiana.....	110	1	114	6	143	4	115	4	118	0	600	15	2.4
Iowa.....	115	0	110	1	100	0	77	1	103	0	503	2	0.4
Kansas.....	76	0	80	0	98	0	95	0	96	0	445	0	0.0
Kentucky.....	69	0	70	0	80	2	81	0	84	0	384	2	0.5
Louisiana.....	111	3	119	0	122	0	134	0	153	1	619	4	0.6
Maine.....	30	0	35	0	35	0	45	1	53	0	198	1	0.5
Maryland.....	176	5	165	2	204	17	194	25	202	34	941	86	8.4
Massachusetts.....	208	132	189	177	236	176	197	239	271	239	1,101	957	46.5
Michigan.....	219	0	194	0	225	2	243	2	248	0	1,119	4	0.4
Minnesota.....	142	0	126	1	159	0	173	0	191	1	791	2	0.3
Mississippi.....	27	0	24	0	28	1	30	1	22	4	131	6	4.4
Missouri.....	156	0	215	0	186	2	214	8	202	3	973	13	1.3
Montana.....	8	0	8	0	9	0	8	0	15	0	48	0	0.0
Nebraska.....	67	0	66	0	86	0	90	0	75	0	384	0	0.0
Nevada.....	4	1	1	1	5	0	3	1	0	0	13	3	18.8
New Hampshire.....	9	0	10	0	6	0	4	0	22	0	51	0	0.0
New Jersey.....	113	7	153	9	175	10	182	5	168	6	791	37	4.5
New Mexico.....	4	0	0	0	1	0	1	0	3	0	9	0	0.0
New York.....	717	179	747	146	834	193	879	195	932	249	4,109	962	19.0
North Carolina.....	87	1	65	0	75	0	64	0	64	0	355	1	0.3
North Dakota.....	21	0	14	2	12	1	14	1	14	0	75	4	5.1
Ohio.....	270	10	285	7	261	6	295	3	312	2	1,423	28	1.9
Oklahoma.....	60	0	66	0	73	0	62	0	70	0	331	0	0.0
Oregon.....	31	1	39	0	28	0	55	0	47	0	200	1	0.5
Pennsylvania.....	438	8	456	12	466	10	464	6	541	1	2,385	37	1.5
Rhode Island.....	40	1	38	3	34	2	53	4	22	7	187	18	8.8
South Carolina.....	40	0	38	0	46	0	40	0	32	0	205	0	0.0
South Dakota.....	12	0	14	0	10	0	20	0	15	0	71	0	0.0
Tennessee.....	190	1	141	0	173	0	181	1	178	1	863	3	0.4
Texas.....	147	0	166	0	165	2	188	4	176	21	842	27	3.1
Utah.....	24	0	9	0	20	0	20	1	23	0	96	1	1.0
Vermont.....	23	0	27	0	30	0	26	0	38	0	144	0	0.0
Virginia.....	115	3	140	1	130	4	105	1	106	0	602	9	1.5
Washington.....	42	0	41	0	45	0	44	0	58	1	230	1	0.4
West Virginia.....	27	1	30	2	25	0	38	0	59	0	179	3	1.6
Wisconsin.....	116	3	115	5	118	4	111	0	110	1	570	13	2.2
Wyoming.....	2	0	2	0	1	1	3	0	1	0	9	1	10.0
U. S. Territories and Possessions	104	4	38	4	29	4	40	6	21	12	232	30	11.5
Totals.....	5,666		5,665		6,138		6,428		6,906		30,803		
Totals—Examined	5,238		5,236		5,622		5,843		6,210		28,149		
Passed.....	428		429		516		585		696		2,654		
Failed.....	7.6		7.6		8.4		9.1		10.1		8.6		

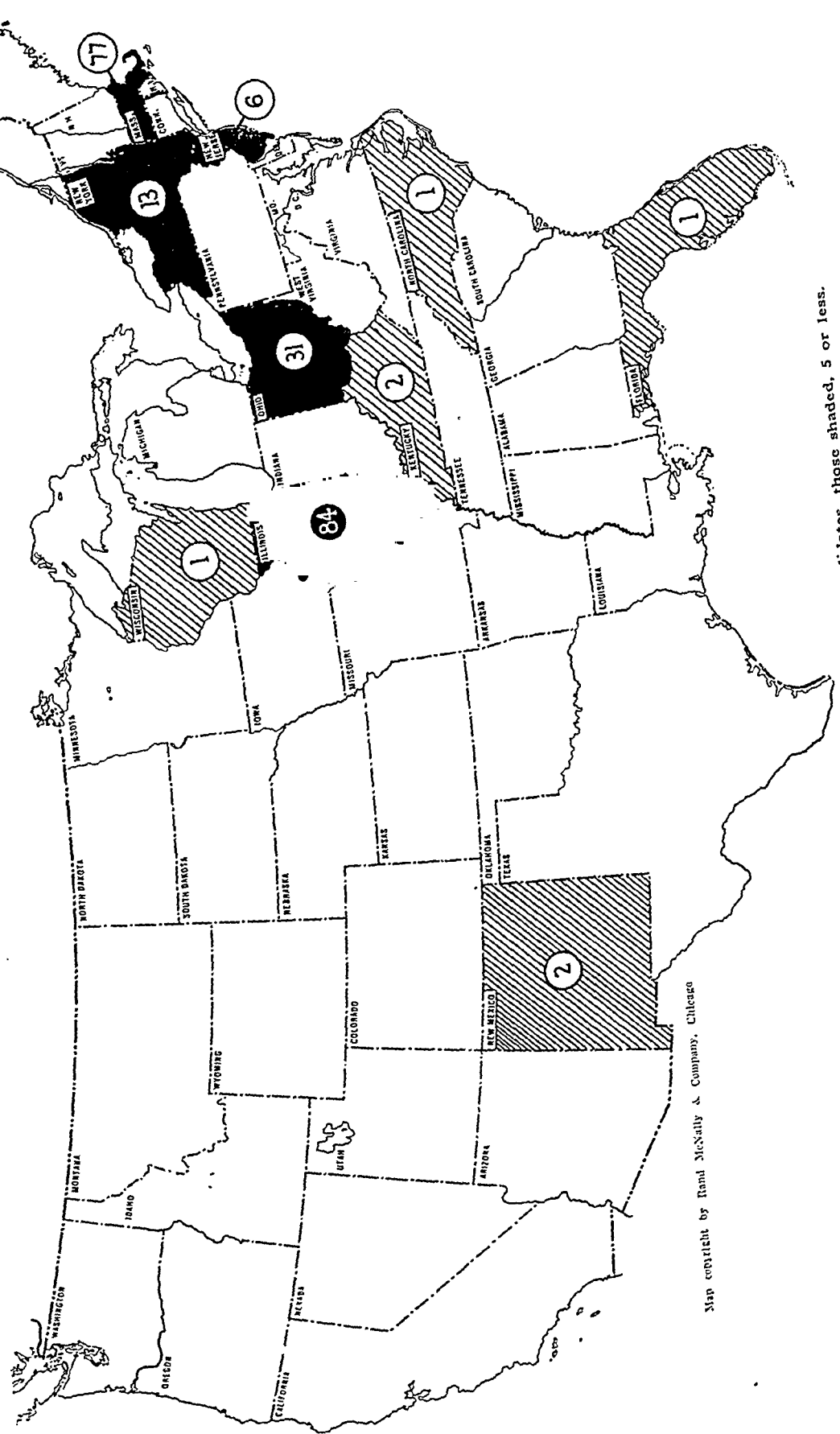
unapproved schools, many of whom repeatedly fail. A bill was passed in Massachusetts in 1936 giving the board of medical examiners approving authority. The board members are planning to visit the medical schools of Massachusetts and, together with questionnaires similar to those used by the Council in its recent survey of medical schools, plans to establish a list of recognized schools. The effect of the amendment to the medical practice act, however, will not be felt until after 1940, when it goes into effect.

CANDIDATES EXAMINED FROM 1932 TO 1936 INCLUSIVE

In table 10 are listed the number of candidates examined in the various states, territories and possessions in the last five years, 1932-1936 inclusive, showing those who passed and failed. In this period New York

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1919

CHART 1.—STATES REGISTERING OTHER THAN GRADUATES OF APPROVED MEDICAL SCHOOLS—1936



The states in black registered more than 5 such candidates, those shaded, 5 or less.

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The fourth highest proportion of failures was in New York, with 19 per cent. The comparatively high percentage in this state is occasioned by the fact that New York admits a great many graduates of foreign medical schools to its licensing examination. Arizona had 20 per cent failures, the second highest, Connecticut 19.4 per cent, Nevada 18.8 per cent, Florida 16.2

TABLE 11.—Registration—1904-1936

Year	All Candidates Examined		Registered Without Written Examination	Total Registered
	Passed	Percentage Failed		
1904.....	5,676	19.4	999	6,675
1905.....	5,693	20.7	394	6,087
1906.....	6,369	20.7	1,499	7,868
1907.....	5,731	21.3	1,427	7,158
1908.....	6,087	21.7	1,281	7,368
1909.....	5,863	19.6	1,375	7,238
1910.....	5,717	18.4	1,640	7,357
1911.....	5,583	19.8	1,243	6,826
1912.....	5,467	20.5	1,271	6,738
1913.....	5,250	18.6	1,291	6,541
1914.....	4,378	21.5	1,438	5,816
1915.....	4,507	15.5	1,394	5,901
1916.....	4,145	14.9	1,351	5,496
1917.....	4,083	14.1	1,300	5,443
1918.....	3,180	13.2	1,047	4,227
1919.....	4,074	14.2	2,543	6,617
1920.....	4,061	15.3	2,556	6,617
1921.....	4,226	12.4	2,182	6,408
1922.....	3,538	12.2	2,066	5,604
1923.....	4,026	14.8	2,398	6,424
1924.....	4,753	11.8	1,912	6,665
1925.....	5,445	9.2	1,852	7,297
1926.....	5,309	7.9	1,940	7,249
1927.....	4,095	7.2	2,172	7,167
1928.....	5,084	6.8	2,327	7,311
1929.....	5,279	6.2	2,417	7,696
1930.....	5,247	5.7	2,363	7,610
1931.....	5,260	6.2	2,209	7,469
1932.....	5,238	7.6	1,876	7,114
1933.....	5,236	7.6	1,971	7,207
1934.....	5,622	8.4	2,144	7,766
1935.....	5,843	9.1	2,112	8,085
1936.....	6,210	10.1	2,745	8,955

per cent and Delaware 16 per cent. Florida has no reciprocal relations with any state, all candidates applying being required to take the licensing examination. Graduates of earlier years, it appears, experience difficulty in passing examinations. On the other hand, Kansas, Montana, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota and Vermont—nine states—had no failures. Alabama, Arkansas, California, Colorado, the District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Washington, West Virginia and Wisconsin—twenty-nine states—had less than 5 per cent of failures. A total of 30,803 candidates were examined in the five years from 1932 to 1936 inclusive, of whom 28,149 passed and 2,654 failed, 8.6 per cent. These figures represent examinations given and not individuals. A candidate who fails more than once in a given year has not been counted twice, but should he fail in one of the succeeding years in another state he is counted in that state also. Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as passed and failed. With a total of 2,654 failures for the five year period, it seems likely that there were approximately 27,500 individuals examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state. This figure gives a fair estimate of the number of physicians added to the profession each year. Table 5 gives exact totals

on this point for the years 1935 and 1936. From this table it can be seen that there has been a gradual increase in the number of physicians examined.

REGISTRATION 1904-1936

A study of totals and percentages (table 11) for each year beginning with 1904 is of interest. The number (6,210) who passed in 1936 was 367 more than the number who passed in 1935 and only 534 more than in 1904. The number licensed without examination, 2,745, was 553 more than in 1935. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By all methods, 8,955 were registered, 920 more than in 1935. This figure represents the largest number of candidates registered since 1904.

Of those examined 10.1 per cent failed in 1936, while 9.1 per cent failed in 1935. While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

It will be seen that there has been no constant increase or decrease in the total number of candidates registered from 1904 to 1933, although since 1906 the number licensed without examination has been increasing, owing to the universal system of endorsement and the recognition of the certificate of the National Board of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physi-

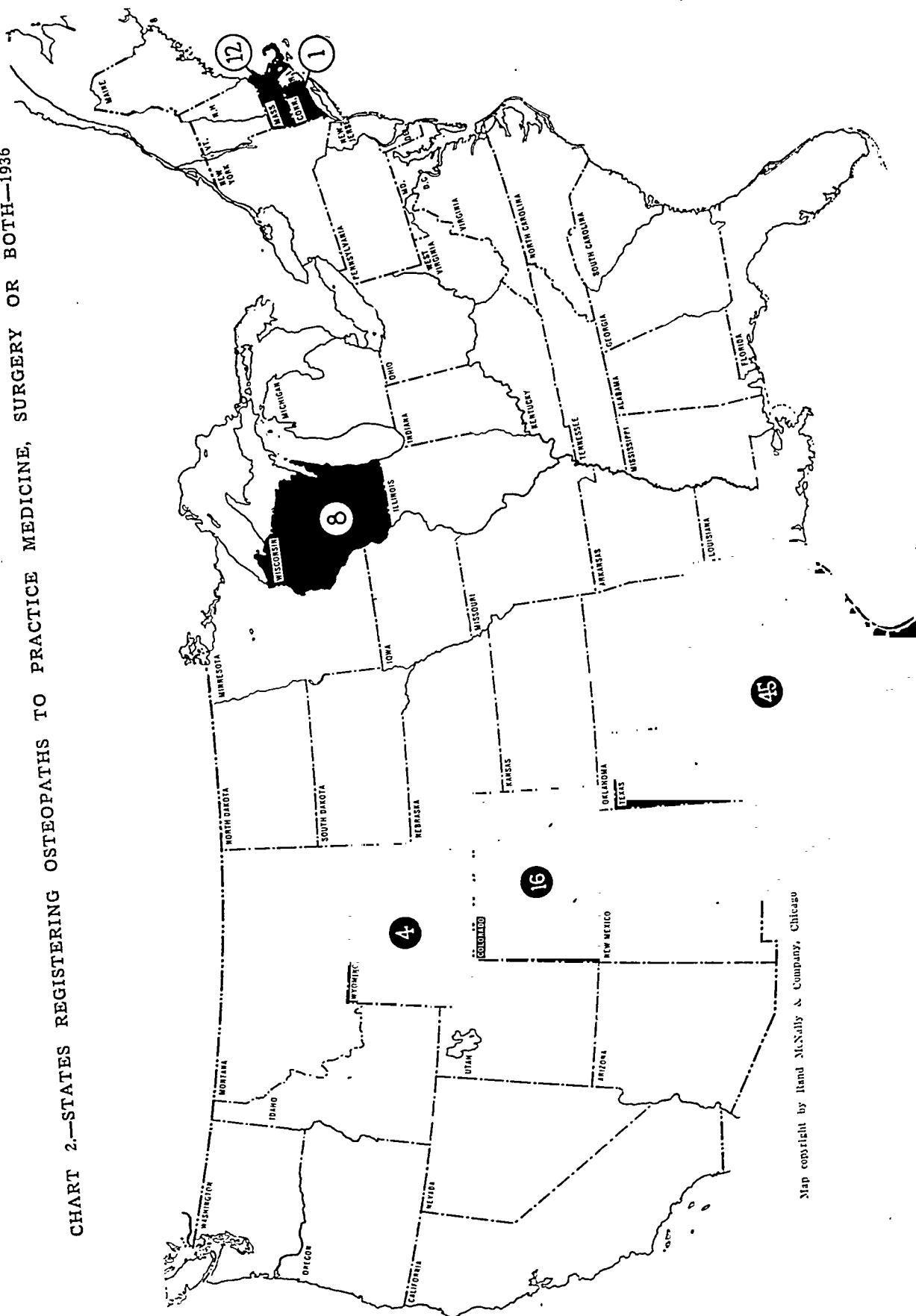
TABLE 12.—Graduates of Other Than Approved Medical Schools Registered—1933-1936

	Examination				Reciprocity and Endorsement				Totals
	1933	1934	1935	1936	1933	1934	1935	1936	
Alabama.....	0	0	0	0	1	0	0	0	1
Arkansas.....	1	1	0	0	1	0	0	0	3
California.....	0	1	1	0	0	0	2	0	4
Florida.....	0	1	1	1	0	0	0	0	3
Idaho.....	0	0	0	0	0	1	0	0	1
Illinois.....	38	33	67	84	0	0	0	0	222
Indiana.....	0	0	1	0	0	0	0	0	1
Kansas.....	0	1	0	0	0	0	0	0	1
Kentucky.....	1	1	1	0	0	0	0	2	5
Massachusetts.....	38	54	26	77	0	0	0	0	195
Michigan.....	0	0	0	0	1	0	0	0	1
Mississippi.....	0	1	0	0	0	1	0	0	2
Missouri.....	1	0	0	0	0	0	2	0	3
New Jersey.....	0	0	0	5	1	4	0	1	11
New Mexico.....	0	0	0	1	1	0	2	1	5
New York.....	0	0	0	0	0	0	0	13	13
North Carolina.....	0	0	0	1	0	0	0	0	1
North Dakota.....	0	0	0	0	0	0	1	0	1
Ohio.....	0	0	16	31	0	1	0	0	48
Oklahoma.....	0	0	1	0	0	0	0	0	1
Rhode Island.....	0	0	1	0	0	0	0	0	1
South Dakota.....	0	0	1	0	0	0	0	0	1
Tennessee.....	1	0	0	0	1	0	0	0	2
Texas.....	0	0	0	0	0	2	0	0	2
Washington.....	1	0	0	0	0	0	0	0	1
Wisconsin.....	0	0	0	0	0	0	0	1	1
Alaska and Hawaii.....	1	1	0	1	0	0	0	1	4
Totals.....	82	94	116	201	6	9	7	19	544

cians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. There was, however, a substantial increase in the number registered in 1934 and 1935 and a still larger increase in 1936, both by examination and by endorsement. This is probably accounted for by the fact that medical schools are graduating larger classes, 5,101 in 1935 and 5,183 in 1936. The enrolment in

(CONTINUED ON PAGE 1427)

CHART 2.—STATES REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH—1936

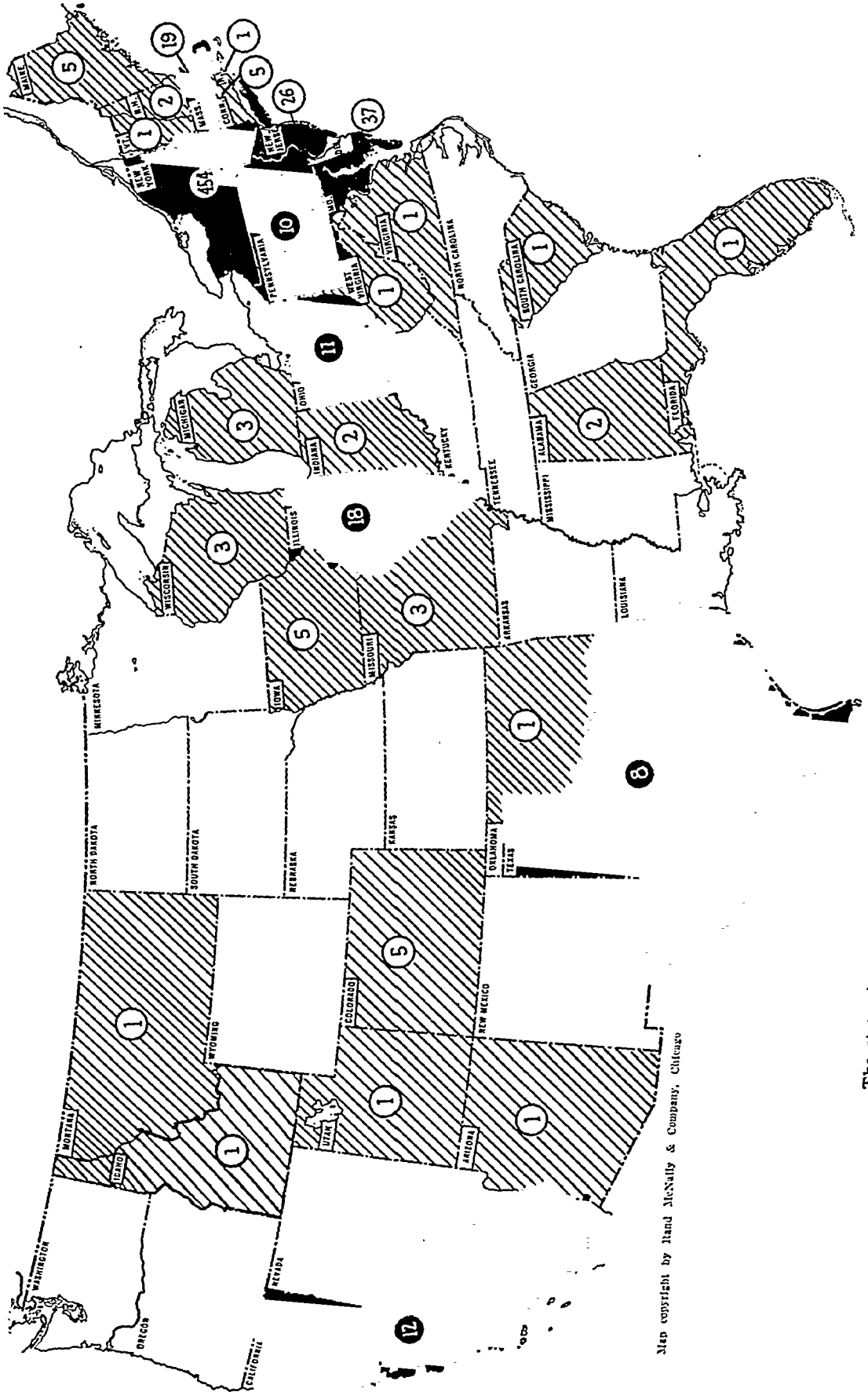


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TABLE 15.—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1931-1936*

	1931-1935		1936			1931-1935		1936	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed		Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA									
University of Adelaide.....	1	0.0	0	0.0					
University of Melbourne.....	1	0.0	0	0.0					
AUSTRIA									
.....	21	52.4	2	100.0					
.....	3	33.3	1	0.0					
.....	89	31.5	51	29.4					
BELGIUM									
Université Catholique de Louvain.....	8	50.0	0	0.0					
Université de Liège.....	2	100.0	1	100.0					
Université Libre de Bruxelles.....	1	0.0	1	0.0					
CHILE									
Universidad de Chile, Santiago.....	1	0.0	0	0.0					
CHINA									
National College of Medicine of Shanghai.....	1	0.0	0	0.0					
Pennsylvania Medical School, Shanghai.....	1	0.0	0	0.0					
University of Hongkong.....	1	0.0	0	0.0					
CHOSEN									
Severance Union Medical College, Keijo.....	2	100.0	0	0.0					
COLOMBIA									
Universidad de Bolívar, Cartagena.....	1	0.0	0	0.0					
CUBA									
Universidad de la Habana.....	18	27.8	2	100.0					
CZECHOSLOVAKIA									
Deutsche Universität, Prag.....	20	50.0	4	25.0					
Masarykova Universita, Brno.....	5	100.0	2	50.0					
Universita Karlova, Praha.....	4	25.0	2	100.0					
Univerzita Komenského, Bratislava.....	4	75.0	1	0.0					
DOMINICAN REPUBLIC									
Universidad de Santo Domingo.....	4	25.0	0	0.0					
ENGLAND									
Fellow of the Royal College of Physicians of London.....	0	0.0	1	0.0					
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London.....	1	100.0	3	66.7					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London.....	1	100.0	1	0.0					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	34	2.9	18	16.7					
University of Birmingham.....	0	0.0	1	0.0					
University of Bristol.....	1	0.0	0	0.0					
University of Durham, Newcastle-upon-Tyne.....	0	0.0	7	28.6					
University of London.....	4	70.0	3	33.3					
University of Oxford.....	1	0.0	0	0.0					
University of Sheffield.....	3	33.3	2	0.0					
ESTONIA									
Universit� de Tartu.....	1	0.0	0	0.0					
FRANCE									
Universit� de Bordeaux.....	4	50.0	0	0.0					
Universit� de Lyon.....	2	0.0	1	100.0					
Universit� de Montpellier.....	2	50.0	2	0.0					
Universit� de Paris.....	39	28.5	18	38.9					
Universit� de Strasbourg.....	5	40.0	1	0.0					
Universit� de Toulouse.....	3	33.3	1	0.0					
GERMANY									
Albert-Ludwigs-Universit�t, Freiburg.....	20	45.0	7	14.3					
.....	3	66.7	2	50.0					
.....	2	0.0	1	0.0					
.....	0	0.0	5	40.0					
.....	3	33.3	0	0.0					
Friedrich-Alexanders-Universit�t, Erlangen.....	5	80.0	2	50.0					
Friedrich-Wilhelms-Universit�t, Berlin.....	73	35.6	47	27.7					
.....	0	0.0	1	0.0					
.....	17	23.5	12	25.0					
.....	3	0.0	0	0.0					
.....	15	40.0	11	36.4					
.....	14	70.0	5	60.0					
.....	21	23.8	11	45.5					
Medizinische Akademie D�sseldorf.....	1	100.0	2	0.0					
Philippus-Universit�t, Marburg.....	0	0.0	1	0.0					
Rheinische Friedrich-Wilhelms-Universit�t, Bonn.....	2	0.0	3	66.7					
Schlesische Friedrich-Wilhelms-Universit�t, Breslau.....	21	33.3	8	25.0					
Th�ringische Landesuniversit�t, Jena.....	5	40.0	3	33.3					
Universit�t Heidelberg.....	18	16.7	6	0.0					
Universit�t K�ln.....	10	40.0	3	0.0					
Universit�t Leipzig.....	13	46.2	8	37.5					
Universit�t Rostock.....	0	0.0	1	100.0					
Ver�inigten Friedrichs-Universit�t, Halle-Wittenberg.....	1	0.0	0	0.0					
Westf�lische Wilhelms-Universit�t, M�nster.....	2	100.0	1	0.0					
GREECE									
National University of Athens.....	8	87.5	3	66.7					
GUATEMALA									
Universidad Nacional de Guatemala.....	1	100.0	0	0.0					
HUNGARY									
Magyar Kir�lyi Erzs�bet Tudom�nyegyetem, P�cs.....	8	62.5	0	0.0					
Magyar Kir�lyi Ferencz J�zsef Tudom�nyegyetem, Szeged.....	3	33.3	1	0.0					
Magyar Kir�lyi P�zm�ny Petrus Tudom�nyegyetem, Budapest.....	25	24.0	0	0.0					
IRELAND									
Licentiate of the Royal College of Physicians of Ireland and of the Royal College of Surgeons in Ireland.....	4	0.0	0	0.0					
IRELAND—Continued									
National University of Ireland.....	7	28.6	2	0.0					
Queen's University, Belfast.....	4	25.0	0	0.0					
University of Dublin.....	1	0.0	4	25.0					
ITALY									
Regia Universit� di Bologna.....	21	47.6	11	36.4					
Regia Universit� di Catania.....	2	50.0	0	0.0					
Regia Universit� di Firenze.....	9	44.4	0	0.0					
Regia Universit� di Genova.....	7	71.4	2	100.0					
Regia Universit� di Milano.....	1	0.0	1	0.0					
Regia Universit� di Modena.....	4	100.0	3	66.7					
Regia Universit� di Napoli.....	119	61.3	24	68.7					
Regia Universit� di Padova.....	9	55.6	6	66.7					
Regia Universit� di Palermo.....	31	77.4	4	50.0					
Regia Universit� di Pavia.....	3	66.7	1	0.0					
Regia Universit� di Perugia.....	0	0.0	1	0.0					
Regia Universit� di Pisa.....	1	0.0	0	0.0					
Regia Universit� di Roma.....	84	53.6	64	54.7					
Regia Universit� di Siena.....	3	33.3	0	0.0					
Regia Universit� di Torino.....	2	0.0	0	0.0					
JAPAN									
Keio Gijuku University, Tokyo.....	1	0.0	0	0.0					
Tohoku Imperial University, Sendai.....	3	66.7	0	0.0					
Tokyo Charity Association Medical College.....	5	40.0	0	0.0					
Tokyo Special Medical School.....	1	100.0	0	0.0					
MEXICO									
Escuela Libre de Homeopat�a del Estado de Puebla.....	1	100.0	0	0.0					
Escuela M�dica Militar M�xico, D. F.....	1	0.0	2	100.0					
Instituto Literario y Cient�fico, San Luis Potos�.....	1	100.0	0	0.0					
Universidad de Guadalajara.....	2	0.0	0	0.0					
Universidad Nacional, M�xico, D. F.....	9	0.0	2	100.0					
NETHERLANDS									
Rijks-Universiteit te Leiden.....	2	0.0	0	0.0					
Universiteit van Amsterdam.....	3	33.3	0	0.0					
NORWAY									
Kongelige Frederiks Universitet, Oslo.....	3	0.0	0	0.0					
PERSIA									
Government Medical School, Teheran.....	1	100.0	0	0.0					
POLAND									
Uniwersytet Jana Kazimierza, L�w�.....	4	50.0	2	50.0					
Uniwersytet Jozefa Pilsudskiego, Warszawa.....	1	0.0	0	0.0					
PORTUGAL									
Universidade de Lisboa.....	5	60.0	0	0.0					
Universidade do Porto.....	3	33.3	0	0.0					
RUMANIA									
Universitatea din Bucuresti.....	2	50.0	0	0.0					
Universitatea Regele Ferdinand I-ului din Cluj.....	9	66.7	0	0.0					
SCOTLAND									
Licentiate of the Royal College of Physicians of Edinburgh.....	1	0.0	0	0.0					
Licentiate of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh.....	5	0.0	1	0.0					
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow.....	33	21.2	35	20.0					
School of Medicine of the Royal Colleges, Edinburgh.....	5	0.0	0	0.0					
University of Aberdeen.....	11	27.3	3	0.0					
University of Edinburgh.....	68	8.8	10	20.0					
University of Glasgow.....	16	0.0	7	0.0					
University of St. Andrews.....	74	12.2	13	15.4					
SOUTH AFRICA, UNION OF									
University of Cape Town.....	1	0.0	0	0.0					
SPAIN									
Universidad Central de Espa�a, Madrid.....	4	25.0	0	0.0					
Universidad de Barcelona.....	1	0.0	0	0.0					
Universidad de Sevilla.....	1	0.0	0	0.0					
SWEDEN									
K�nig. Universitetet i Uppsala.....	1	0.0	0	0.0					
SWITZERLAND									
Universit�t Basel.....	3	33.3	21	38.1					
Universit�t Bern.....	32	40.6	23	42.4					
Universit�t Z�rich.....	8	37.5	29	34.5					
Universit� de Gen�ve.....	19	31.6	21	25.8					
Universit� de Lausanne.....	2	0.0	15	26.7					
SYRIA									
American University of Beirut.....	7	14.3	0	0.0					
Universit� de St. Joseph, Beyrouth.....	3	66.7	0	0.0					
TAIWAN									
Taihoku Special Medical School.....	2	50.0	0	0.0					
TURKEY									
University of Istanbul.....	1	100.0	0	0.0					
UNION OF SOCIALIST SOVIET REPUBLICS									
First.....	1	100.0	0	0.0					
First.....	6	66.7	0	0.0					
Irkutsk.....	1	0.0	0	0.0					
Khar'kov Medical Institute.....	6	50.0	0	0.0					
Kiev Medical Institute.....	2	50.0	1	100.0					
Saratov Medical Institute.....	6	83.3	0	0.0					
Psycho-Neurological Institute, Petrograd.....	2	100.0	0	0.0					
Tomsk Medical Institute.....	4	50.0	0	0.0					
YUGOSLAVIA									
Beogradskog Universiteta.....	2	50.0	0	0.0					
Zagrebaskog Universiteta.....	2	0.0	0	0.0					

CHART 3.—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD.—1936.



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The states in black registered more than 5 such graduates, those shaded, 5 or less.

(CONTINUED FROM PAGE 1423)

medical schools for the college sessions 1935-1936 and 1936-1937 and subsequent years in many cases has been and will be reduced.

GRADUATES OF OTHER THAN APPROVED MEDICAL SCHOOLS AND OSTEOPATHS REGISTERED

In table 12 will be noted the total number of graduates of those institutions which have been classified as unapproved who were registered with or without examination in 1933, 1934, 1935 and 1936.

TABLE 13.—*Graduates of Schools of Osteopathy Registered by Medical Licensing Boards—1933-1936*

	Examination				Reciprocity and Endorsement				Totals
	1933	1934	1935	1936	1933	1934	1935	1936	
Colorado.....	8	10	13	16	0	0	0	0	47
Connecticut.....	2	1	0	1	0	0	0	0	4
District of Columbia..	0	0	0	0	1	0	0	0	1
Massachusetts.....	15	21	5	12	0	0	0	0	53
New Jersey.....	0	0	2	0	0	0	0	0	2
Texas.....	4	7	7	11	13	17	13	34	106
Wisconsin.....	6	2	0	3	9	3	0	5	28
Wyoming.....	0	0	0	0	0	1	2	4	7
Totals.....	35	41	27	43	23	21	15	43	248

Ten states, Alaska and Hawaii in 1936 registered 220 graduates of unapproved medical schools, 201 by examination and nineteen without examination.

The number of unapproved graduates increased by ninety-seven the number registered in 1935. One each was licensed in Florida, North Carolina, Wisconsin, Alaska and Hawaii. The graduate licensed in Florida was required to repeat his senior year's work in an approved medical school. New Mexico permitted one such a graduate to be examined by virtue of the fact that he served in the marine service. No undergraduates were licensed, although five were examined. The thirty-one licensed by examination in Ohio, five in New Jersey by examination and one by endorsement, two in Kentucky by endorsement and thirteen in New York by endorsement are graduates of the Eclectic Medical College of Cincinnati, an unapproved institution. This school has not enrolled any new students for the present college session and plans to discontinue in 1939. The seventy-seven registered in Massachusetts represented mainly two unapproved schools located in that state and a few elsewhere. This state by law is required to admit to its examination a graduate of any chartered medical school but in 1936 amended its medical practice act giving the medical board approving authority. The new law goes into effect in 1940. Eighty-four graduates of the Chicago Medical School, an unapproved institution, were registered in Illinois by examination in 1936.

In the four year period shown, 493 graduates of unapproved schools and undergraduates were registered by examination and forty-one by reciprocity and endorsement, a total of 534.

Chart 1 indicates by shaded lines those registering fewer than six graduates of unapproved medical schools, and by a solid area those registering more than five such candidates during 1936.

In table 13 are given the total number of graduates of osteopathic schools who were registered with or without examination in 1933, 1934, 1935 and 1936.

In 1936, six states registered forty-three by examination and forty-three by endorsement of credentials.

These osteopaths were registered in Colorado, Connecticut, Massachusetts, Texas, Wisconsin and Wyoming. Sixty-four osteopaths failed of registration by examination, one each in Colorado and New Jersey, five in Connecticut, eight in Texas and forty-nine in Massachusetts.

These osteopaths were granted the right to practice medicine or surgery or both, by the board of medical examiners. These facts are shown graphically in chart 2.

In the four year period 1933-1936, 248 graduates of osteopathic schools secured the privilege of practicing medicine, surgery, or both, in seven states and the District of Columbia.

In Colorado, osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for a license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four-year course of instruction of not less than thirty-two weeks in each year. As has been said, the Massachusetts statute has been amended.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who

TABLE 14.—*Graduates of Approved Schools and Others Registered—1922-1936*

Date	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922.....	4,516	80.6	1,088	19.4	5,604
1923.....	5,193	80.8	1,231	19.2	6,424
1924.....	5,681	85.2	984	14.8	6,665
1925.....	6,306	86.4	991	13.6	7,297
1926.....	6,427	88.7	822	11.3	7,249
1927.....	6,408	89.4	759	10.6	7,167
1928.....	6,584	90.1	727	9.9	7,311
1929.....	7,000	91.0	696	9.0	7,696
1930.....	7,008	92.1	602	7.9	7,610
1931.....	6,928	92.8	541	7.2	7,469
1932.....	6,667	93.7	447	6.3	7,114
1933.....	6,753	93.7	454	6.3	7,207
1934.....	7,155	92.1	611	7.9	7,766
1935.....	7,357	91.6	678	8.4	8,035
1936.....	7,904	88.3	1,051	11.7	8,955

present three years of practice of surgery in a hospital approved by the board of medical examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In Wisconsin and Wyoming, osteopaths are granted the right to practice surgery.

It is to be regretted that such persons as those described in tables 12 and 13 are granted the right to

(CONTINUED ON PAGE 1430)

TABLE 16.—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1936*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Alabama	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
California	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Colorado	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Connecticut	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Florida	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Idaho	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Illinois	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Iowa	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Maine	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Maryland	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Massachusetts	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Michigan	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Missouri	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
New Hampshire	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
New Jersey	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
New York	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Ohio	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Oklahoma	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Pennsylvania	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Rhode Island	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
South Carolina	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Tennessee	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Texas	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Vermont	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Virginia	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
West Virginia	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Wisconsin	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
Hawaii and Puerto Rico	P	F	F	P	P	F	P	P	P	F	P	F	P	F	P	F	P	P	F	P	P	F	P	F	P	P	F	P	F		
AUSTRIA																															
1	Karl-Franzens-Universität, Graz.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
2	Leopold-Franzens-Universität, Innsbruck.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
3	Universität, Wien.....	10	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
BELGIUM																															
4	Université de Liège.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
5	Université Libre de Bruxelles.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
CUBA																															
6	Universidad de la Habana.....	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
CZECHOSLOVAKIA																															
7	Deutsche Universität, Prag.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
8	Masarykova Univerzita, Brno.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
9	Univerzita Karlova, Praha.....	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1		
10	Univerzita Komenského, Bratislava.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
ENGLAND																															
11	Fellow of the Royal College of Physicians of London.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
12	Lieutenant in Medicine, Surgery and Midwifery of the Apothecaries' Society of London.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
13	Lieutenant of the Royal College of Physicians of London and Member of the Royal College of Physicians of London.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
14	Lieutenant of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
15	University of Birmingham.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
16	University of Durham, Newes-le-upon-Tyne.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
17	University of London.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
18	University of Sheffield.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
FRANCE																															
19	Université de Lyon.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
20	Université de Montpellier.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
21	Université de Paris.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
22	Université de Strasbourg.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
23	Université de Toulouse.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
GERMANY																															
24	Albert-Ludwigs-Universität, Freiburg.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
25	Albertus-Universität, Königsberg.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
26	Christian-Albrechts-Universität, Kiel.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
27	Eberhard-Karls-Universität, Tübingen.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
28	Friedrich-Alexander-Universität, Erlangen.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
29	Friedrich-Wilhelms-Universität, Berlin.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
30	Georg-Augusts-Universität, Göttingen.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
31	Hamburgische Universität.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
32	Johann Wolfgang Goethe-Universität, Frankfurt-am- Main.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
33	Julius-Maximilians-Universität, Würzburg.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
34	Karl-Wilhelms-Universität, München.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		
35	Martin-Luther-Akademie Halle.....	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0		

30	Philipps-Universität, Marburg.....	1 0.....	1 2.....	1 1 0 0 0 1 30
37	Rheinische Friedrich-Wilhelms-Universität, Bonn.....	1 0 1 0.....	1 2.....	3 1 2 66.7 1 37
38	Schlesische Friedrich-Wilhelms-Universität, Breslau.....	1 0 1 0.....	1 2.....	3 1 2 25.0 6 33
39	Thüringische Landesuniversität, Jena.....	1 0 1 0.....	1 2.....	3 2 1 33.3 2 39
40	Universität Halleberg.....	1 0 1 0.....	2 0.....	3 6 0 0 0 4 41
41	Universität Köln.....	1 0 1 0.....	2 0.....	3 3 0 0 0 2 40
42	Universität Leipzig.....	1 0 1 0.....	2 0.....	3 5 3 37.5 6 43
43	Universität Rostock.....	1 0 1 0.....	2 0.....	3 0 1 100.0 1 43
44	Westfälische Wilhelms-Universität, Münster.....	1 0 1 0.....	2 0.....	1 1 0 0 0 1 44
GREECE				
45	National University of Athens.....	0 1.....	1 1.....	3 1 2 66.7 2 45
HUNGARY				
46	Magyar Királyi Ferencz József Tudományegyetem, Szeged.....	1 0.....	1 1.....	1 1 0 0 0 1 46
IRELAND				
47	National University of Ireland.....	1 0.....	2 0.....	2 2 0 0 0 1 47
48	University of Dublin.....	1 0.....	0 1.....	4 3 1 25.0 4 48
ITALY				
49	Regia Università di Bologna.....	6 4.....	1 0.....	11 7 4 36.4 2 49
50	Regia Università di Genova.....	1 0.....	0 1.....	2 0 2 100.0 2 50
51	Regia Università di Milano.....	1 0.....	0 1.....	1 1 0 0 0 1 51
52	Regia Università di Modena.....	1 0.....	0 1.....	3 1 2 66.7 2 52
53	Regia Università di Napoli.....	3 2 0 1.....	2 0 3 11.....	24 8 16 66.7 0 53
54	Regia Università di Padova.....	2 3.....	0 1.....	6 2 4 66.7 2 54
55	Regia Università di Palermo.....	1 1.....	1 1.....	4 2 2 50.0 2 55
56	Regia Università di Pavia.....	1 0.....	1 0.....	1 1 0 0 0 1 56
57	Regia Università di Perugia.....	1 0.....	1 0.....	1 1 0 0 0 1 57
58	Regia Università di Roma.....	14 11 2 4.....	1 1 7 14.....	64 29 35 51.7 9 58
MEXICO				
59	Escuela Médico Militar, México, D. F.....	0.....	0 2.....	2 0 2 100.0 1 59
60	Universidad Nacional, México, D. F.....	0.....	0 2.....	2 0 2 100.0 1 60
POLAND				
61	Uniwersytet Jan Kazimierza, Lwów.....	1 1.....	1 1.....	2 1 1 50.0 1 61
SCOTLAND				
62	Lieutenant of the Royal College of Physicians and of the Royal College of Surgeons, Edinburgh.....	1 0.....	1 0.....	1 1 0 0 0 1 62
63	Lieutenant of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow.....	1 0.....	27 7.....	35 28 7 20.0 2 63
64	University of Aberdeen.....	1 0 2 0.....	1 0 2 0.....	3 3 0 0 0 2 64
65	University of Edinburgh.....	2 0 1 0.....	1 0 3 2 1 0.....	10 8 2 20.0 5 65
66	University of Glasgow.....	1 0.....	6 0.....	7 7 0 0 0 2 66
67	University of St. Andrews.....	2 0 7 2.....	1 0.....	13 11 2 15.4 4 67
SWITZERLAND				
68	Universität Basel.....	1 0 1 0.....	7 8 2 0.....	21 13 8 38.1 0 68
69	Universität Bern.....	1 0 1 0.....	2 0 16 13.....	33 10 14 42.4 4 69
70	Universität Zürich.....	1 1.....	18 8.....	29 10 10 34.5 3 70
71	Université de Genève.....	1 0.....	2 0 12 5.....	21 16 5 21.8 4 71
72	Université de Lausanne.....	2 1.....	1 0 8 3.....	15 11 4 26.7 3 72
UNION OF SOCIALIST SOVIET REPUBLICS				
73	Kiev Medical Institute.....	0 1.....	1 0.....	1 0 1 100.0 1 73
74	Totals.....	3 11 5 7 2 1 19 5 5 63 32 2 4 2 21 356 12 1 10 2 1 1 1 4 6 588.....	.....	.....
75	Totals—Examined—Passed.....	1 8 5 2 1 1 17 5 5 37 19 2 3 2 18 217 10 1 10 1 1 1 3 380.....	.....	.....
76	Totals—Examined—Failed.....	2 3 0 5 1 0 2 0 0 26 13 0 1 0 3 139 2 0 0 1 5 0 0 1 3.....	.....	.....
77	Percentage Failed.....	66.7 27.3 0.0 71.4 50.0 0.0 10.5 0.0 0.0 41.2 40.6 0.0 25.0 0.0 14.3 39.0 16.7 0.0 0.0 50.0 0.0 100.0 50.0 0.0 0.0 25.0 50.0.....	.....	.....
1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	.....	.....	.....

(CONTINUED FROM PAGE 1427)

practice. The medical profession should be ever watchful and untiring in its efforts to prevent osteopaths and others from gaining the legal right to practice medicine or surgery, for which their training is wholly inadequate. If the licensing boards were more fully conscious of their responsibility to protect the citizens of their respective communities from ignorance and incompetence masquerading as medical skill, we should not continue to have year after year licenses granted to persons whose training falls so far short of the currently accepted standards of medical education.

SOURCE OF PHYSICIANS REGISTERED

The educational fitness of the individuals registered in the last fifteen years, 1922-1936, is shown in table 14. Of the 8,955 registered by all methods in 1936, 7,904, or 88.3 per cent, graduated from approved medical schools and there were 1,051, 11.7 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.

ANNUAL REGISTRATION

Eighteen states require that all physicians licensed register annually, whether or not they reside in the state. These states are:

Arkansas (Eclectic Board only)	Minnesota
California	Nebraska
Colorado	Nevada
Connecticut	New York
Florida	North Dakota
Idaho	Oregon
Iowa	Pennsylvania
Kansas	Texas
Louisiana	Utah

Five states—Alabama, Delaware, Georgia, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. In New Mexico, annual registration legislation is pending. The fee for this registration is generally \$2.

GRADUATES OF FACULTIES OF MEDICINE ABROAD

A study of the number of Americans pursuing medical courses in Europe has been carried on by the Council since 1931, when it became evident that great numbers of Americans were going to Europe to study. There are now about 1,500 American students studying abroad who apparently plan to return to the United States to practice. Graduates of faculties of medicine abroad examined for licensure in 1936 are presented in table 16. These represent both American and foreign born physicians. Sixty-seven medical schools and six licensing corporations of fourteen European and two Latin American countries were represented. There were 588 examined, of whom 380 passed and 208, 35.4 per cent, failed. The numbers examined, passed and percentage failed for seven years are shown in table 17. As will be noted, the number being examined is steadily increasing.

In addition to the figures given, 264 graduates of foreign medical faculties were licensed in 1936 without examination and 237 of the 264 so registered were granted licenses in New York on the basis of their

foreign diplomas or licenses, while the remainder (twenty-seven) had already been examined by a state board in this country and were merely migrating.

Graduates of foreign medical faculties were licensed in thirty states; in twenty-seven states, Hawaii and Puerto Rico by examination and in thirteen states without examination.

The increase in the number examined in 1936 represents mostly the Americans who began the study of medicine in 1930. In 1933 the Federation of State Medical Boards adopted a resolution to the effect that no student matriculating in a European medical school subsequent to the academic year of 1932-1933 will be admitted to any state medical licensing examination who does not present satisfactory evidence of premedical education equivalent to the requirements of the Association of American Medical Colleges and the Council on Medical Education and Hospitals, and graduation from a European medical school after four academic years of attendance, and further submits evidence of having satisfactorily passed the examination to obtain a license to practice medicine in the country in which the medical school from which he is graduated is located. This policy of the federation has been made effective by individual action on the part of the state licensing bodies and the National Board of Medical Examiners and will have its desired effect in the future.

In 1934 the Federation of State Medical Boards passed a resolution recommending to its constituent boards that, until adequate information is available, these boards deny graduates of foreign medical schools admission to the licensure examination. However, such candidates, as has just been mentioned, were registered in thirty states.

Several years ago the governments of many European countries sent representatives to this country to discuss appropriate measures for dealing with students from the United States. By the raising of entrance requirements, reduction in enrolment and careful scrutinizing credentials, the number studying abroad should be reduced.

Chart 3 shows in graphic form the states which during 1936 registered graduates of foreign medical faculties by examination, endorsement or both. From a perusal of tables 2 and 3 it can be ascertained how

TABLE 17.—*Graduates of Faculties of Medicine Abroad Examined—1930-1936*

Date	Number Examined	Passed	Percentage Failed
1930.....	167	92	44.9
1931.....	158	91	42.4
1932.....	182	96	47.3
1933.....	200	129	35.5
1934.....	285	170	40.2
1935.....	437	202	53.9
1936.....	588	380	35.4

many were licensed by both these means in the various states. New York, as has been brought out, licensed 454 foreign graduates of the 644 so registered. Of these, 217 were examined and 237 registered without examination. The next highest figure, thirty-seven, were examined in Maryland, while in New Jersey eighteen were examined and eight licensed without examination. The states in black in the chart licensed more than five graduates of foreign schools; those shaded, five or less.

In table 15 are assembled figures showing the standing during the six year period 1931-1936 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1936. One hundred and twenty-eight schools and eight of the licensing corporations of Great Britain were represented. During the five year period (1931-1935) 1,282 were examined and in 1936, 588. The largest number represented the Regia Università di Napoli, 119, of whom 61.3 per cent failed. The Universität Wien in the five year period was second, eighty-nine, of whom 31.5 per cent failed. There were eighty-four from the Regia Università di Roma with 53.6 per cent of failures, while the University of Edinburgh, with sixty-eight examined, had 8.8 per cent failures. A study of the percentage failed is of interest. Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various states he is recorded as such for a given year.

BASIC SCIENCE BOARDS

In nine states and the District of Columbia a certificate in the basic sciences is a prerequisite to a license to practice medicine. This certificate is obtainable after

TABLE 1.—States Having Basic Science Laws and Year of Enactment

State	Year Enacted
Arizona	1933
Arkansas	1929
Connecticut	1925
District of Columbia	1929
Iowa	1935
Minnesota	1927
Nebraska	1927
Oregon	1933
Washington	1927
Wisconsin	1925

examination in the majority of instances. Boards for certification of candidates in the basic sciences functioned during 1936 in Arizona, Arkansas, Connecticut, the District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin. The newest addition to this group is Iowa, whose basic science board operated for the first time in 1935. The Supreme Court of Arizona voided the basic science act of that state in 1936 but the legislature reenacted the law without change. No other basic science act was passed in 1936. In 1937, according to data submitted to the Bureau of Legal Medicine and Legislation of the American Medical Association, basic science legislation was introduced in Colorado, Georgia, Kansas, Maine, Michigan, New Mexico, Oklahoma, Tennessee, Utah, West Virginia and Wyoming. In addition, amendments to existing laws were proposed in Nebraska and in Oregon.

Statistics based on the number of candidates certified in 1936, and those who failed to secure this certification, together with the totals for other years shown for comparison, are included in the accompanying tabulations.

In table 1 is shown the years in which the various basic science acts were enacted.

In table 2 will be found the subjects in which examinations were conducted in the respective states and the District of Columbia. The subjects included in basic

science examinations are specified by the basic science acts. The examining boards may neither add to nor subtract from such subjects. Since the table was last published,¹ no legislative changes have occurred with respect to examination subjects.

Applicants examined during 1936 in the various groups—physicians or medical students, osteopaths, chiropractors, and those unclassified—are included in table 3. There were 1,098 examined by the ten boards. Of this number 1,032 were doctors of medicine or medi-

TABLE 2.—Subjects of Examinations

	Examinations Required in						
	Anat-omy	Bacteri-ology	Chem-istry	Diag-nosis	Hy-giene	Pathol-ogy	Physi-ology
Arizona.....	+	+	+	..	+	+	+
Arkansas.....	+	+	+	+	+
Connecticut.....	+	+	+	+	+
District of Columbia.....	+	+	+	+	+
Iowa.....	+	+	+	..	+	+	+
Minnesota.....	+	+	+	..	+	+	+
Nebraska.....	+	+	+	..	+	+	+
Oregon.....	+	..	+	..	+	+	+
Washington.....	+	..	+	..	+	+	+
Wisconsin.....	+	+	..	+	+

cal students (referred to hereafter for clarity as physicians), thirty-two osteopaths, fifteen chiropractors, and for nineteen it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder compose the unclassified group. Of the physicians examined 13.7 per cent failed, of the osteopaths 56.3 per cent, of the chiropractors 73.3 per cent and of those unclassified 57.9 per cent. There were 891 physicians who passed, fourteen osteopaths, four chiropractors and eight unclassified. Minnesota examined the largest number, 271, of whom 19.6 per cent

TABLE 3.—Applicants Examined—1936

	Physi- cians or Medical Students		Osteo- paths		Chiro- prac- tors		Unclas- sified		Total Ex- amined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona.....	20	11	1	1	0	0	0	0	33	21	12	26.1
Arkansas.....	57	16	0	0	0	0	0	0	73	57	16	21.9
Connecticut.....	139	3	1	1	0	1	0	1	146	140	6	4.1
District of Columbia.....	13	4	0	0	0	0	0	0	17	13	4	23.5
Iowa.....	10	10	2	1	0	0	2	2	27	11	13	48.1
Minnesota.....	274	45	2	3	2	3	0	2	271	218	53	19.6
Nebraska.....	88	30	1	2	0	0	0	0	121	89	32	26.4
Oregon.....	98	7	2	3	0	0	5	5	120	105	15	12.5
Washington.....	109	14	2	4	0	3	0	0	132	111	21	15.9
Wisconsin.....	143	1	3	3	2	4	1	1	158	149	9	5.7
Totals—Examined.....	1,032		32		15		19		1,098			
Totals—Passed.....	891		11		4		8		917			
Totals—Failed.....	141		18		11		11		181			
Percentage—Failed....	13.7		56.3		73.3		57.9					16.5

failed. The next largest number, 158, were examined in Wisconsin, with 5.7 per cent failures. The District of Columbia, on the other hand, examined only seventeen, of whom 23.5 per cent failed. Of osteopaths, six were examined in Washington and Wisconsin, five in Minnesota and Oregon, three in Iowa and Nebraska,

1. J. A. M. A. 106:1492 (April 25) 1936.

two each in Arizona and Connecticut, and none in Arkansas and the District of Columbia. Chiropractors were examined in Connecticut (one), Minnesota (five), Washington (three) and Wisconsin (six). Of the total number of applicants examined, 917 passed and 181, 16.5 per cent, failed.

The number of certificates granted by examination, reciprocity and endorsement are listed in table 4. A

TABLE 4.—Certificates Issued by Examination, Reciprocity and Endorsement—1936

	Examination					Reciprocity and Endorsement					Registered
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	
Arizona.....	20	1	0	0	21	0	0	0	0	0	21
Arkansas.....	57	0	0	0	57	26	2	1	0	29	86
Connecticut.....	139	1	0	0	140	0	0	0	0	0	140
District of Columbia.....	13	0	0	0	13	0	0	0	0	0	13
Iowa.....	10	2	0	2	14	0	0	0	0	0	14
Minnesota.....	214	2	2	0	218	44	0	0	0	44	262
Nebraska.....	88	1	0	0	89	16	0	0	0	16	105
Oregon.....	98	2	0	5	105	5	3	0	0	8	113
Washington.....	109	2	0	0	111	0	0	0	0	0	111
Wisconsin.....	143	3	2	1	149	60	4	0	0	64	213
Totals.....	891	14	4	8	917	151	9	1	0	161	1,078

total of 917 certificates were granted after examination, of which 891 were issued to physicians, fourteen to osteopaths, four to chiropractors, and eight to persons who were unclassified. There were 161 candidates certified without examination, by reciprocity or endorsement, consisting of 151 physicians, nine osteopaths and one chiropractor. Wisconsin accepted the greatest number without examination, sixty-four, of whom sixty were physicians and four osteopaths. Minnesota registered forty-four physicians by this method and Arkansas twenty-six physicians, two osteopaths and one chiropractor. Arizona, Connecticut, the District of Colum-

TABLE 5.—Total Candidates—1927-1936

Year	Num- ber of Boards	Physicians or Medical Students				Other Practitioners			
		Exam- ined	Percent- age Failed	En- dorse- ment	Total Certi- fied	Exam- ined	Percent- age Failed	En- dorse- ment	Total Certi- fied
1927.....	5	305	8.5	26	305	22	31.8	1	16
1928.....	5	646	9.3	19	605	59	47.5	0	31
1929.....	7	668	8.7	75	685	66	53.0	0	31
1930.....	7	685	11.5	104	710	78	61.5	4	34
1931.....	7	680	13.8	130	716	107	55.1	0	48
1932.....	7	657	10.2	98	688	78	43.6	12	56
1933.....	8	601	12.3	117	644	60	50.0	10	40
1934.....	9	815	11.0	123	848	51	49.0	11	37
1935.....	10	882	13.7	92	853	74	55.4	4	37
1936.....	10	1,032	13.7	151	1,042	66	60.6	10	36
Totals.....		6,971	11.6	935	7,096	661	52.5	52	366

bia, Iowa and Washington licensed none without examination.

Table 5 shows the number of candidates examined and certified from 1927 to 1936 inclusive. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent, failed. In 1936, 1,042 physicians and

thirty-six other practitioners were certified. During the ten year period a total of 6,971 physicians were examined, of whom 11.6 per cent failed, and 661 other practitioners, of whom 52.5 per cent failed. During this period 935 physicians were certified without examination, while only fifty-two other practitioners were so registered.

Altogether, 7,462 certificates have been issued by basic science boards since 1927, of whom 7,096 were granted to physicians and 366 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of other practitioners appearing for examination and licensure was very considerable and was growing.

The basic science board seems desirable in states having a multiplicity of examining and licensing boards. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, organized in 1915, conducts examinations and awards successful candidates a certificate, which is regarded as an adequate qualification for the practice of medicine. Since 1922 its examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical oral examination. In the following paragraphs are presented data regarding the examination and the issuance of certificates and include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplication by counting the last examination if more than one part is taken within the year, and also of those certified or failing of certification. Figures from compilations not reproduced here are also discussed. Similar data have been presented in the State Board Number of THE JOURNAL for nineteen years.

Four examinations were held in parts I and II during 1936, at which 1,344 and 768, respectively, were examined. In part I, 858 passed and 123, 12.5 per cent, failed, while in part II, 716 passed and 50, 6.5 per cent, failed. There were 363 who took incomplete examinations in part I. This examination is arranged for candidates taking part I at the end of their second medical year, who are attending schools, the third year curriculum of which includes courses in one or two subjects of part I. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Also listed under this heading are those who wish to spend some additional time on one or two subjects. Incomplete examinations were not included when computing percentages, since they represent neither a candidate eligible for certification nor a failure. Two candidates took incomplete examinations in part II.

Since 1922, a total of 14,287 examinations have been given in part I and 7,402 in part II. From 1922 to 1936 inclusive, 9,160 individuals were successful in passing

part I, and 6,631 in part II. The figures for those examined include 3,656 incomplete examinations in part I and thirty-five in part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass part I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the fifteen year period since 1922 there were 1,471 failures in part I, 13.8 per cent, and 736 in part II, 10.0 per cent.

In 1922, 388 were examined in part I with 20.3 per cent failures as compared with 1,344 in 1936 with 12.5 per cent failures. In part II in 1922, 109 were examined and 17.4 per cent failed, while, in 1936, 768 were examined and 6.5 per cent failed.

The results of examinations in part III for the fifteen year period 1922 to 1936 inclusive are presented in table I, reproduced here. In 1936, 576 were examined, as compared with only twenty-eight in 1922. Of the number examined in 1936, twenty-nine, or 5.0 per cent, failed. The highest percentage of failures was in 1927,

TABLE 1.—Examinations in Part III

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922.....	28	28	0	0.0
1923.....	76	75	1	1.3
1924.....	120	114	6	5.0
1925.....	217	206	11	5.1
1926.....	255	243	12	4.7
1927.....	294	272	22	7.5
1928.....	322	306	16	5.0
1929.....	351	336	15	4.3
1930.....	419	400	19	4.5
1931.....	437	419	18	4.1
1932.....	549	521	28	5.1
1933.....	552	527	25	4.5
1934.....	581	548	33	5.7
1935.....	598	578	20	3.3
1936.....	576	547	29	5.0
Totals.....	5,375	5,120	255	4.7

when 294 were examined and twenty-two, 7.5 per cent, failed. During 1936, 547 were granted certificates. In fifteen years, 5,375 were examined, of whom 5,120 were granted certificates and 255, 4.7 per cent, failed. Here again a candidate having failed may subsequently receive a certificate.

From 1915 up to and including 1936, 5,387 certificates have been granted.

The number of individuals examined during any one year are given in table 2. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1936 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,515 who took the examination of the National Board of Medical Examiners during 1936, as compared with 525 in 1922. A total of 19,358 passed one or more of the examinations in the fifteen years shown and 2,183, or 10.1 per cent, failed. Incomplete examinations have been taken by 3,491 individuals, many of whom have since received certificates.

Diplomates licensed on the basis of their credentials in the United States have increased from two in 1917 to 540 in 1936, 3,561 having been so licensed since the National Board was created. A total of 5,387,

however, have received the certificate of the National Board. In 1936, 540 diplomates were registered on the basis of credentials in forty-one states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-two states, the District of Columbia, Alaska, Canal Zone, Hawaii and Puerto Rico. Some of these boards, however, have additional requirements.

Alabama	Hawaii	Montana	Pennsylvania
Alaska	Illinois	Nebraska	Puerto Rico
Arizona	Indiana	Nevada	Rhode Island
Arkansas	Iowa	New Hampshire	South Carolina
California	Kansas	New Jersey	South Dakota
Canal Zone	Kentucky	New Mexico	Tennessee
Colorado	Maine	New York	Utah
Connecticut	Maryland	North Carolina	Vermont
Delaware	Massachusetts	North Dakota	Virginia
District of Columbia	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	West Virginia
	Missouri	Oregon	Wyoming

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is also recognized in South Africa, Spain, Syria and Turkey.

Five medical schools now require their students to pass either part I of the National Board examination or parts I and II. Several other schools give their students the option of taking the National Board examination or the school's comprehensive examination. In one or two schools, passing the board's examination in part I excuses the candidate from a portion of the final comprehensive examination given at the end of the fourth year.

Because many graduates of European medical faculties are applying for internships in this country, the Council on Medical Education and Hospitals at a meeting in February 1936 voted that, "when suitable graduates of class A schools of the United States and Canada

TABLE 2.—Parts I, II and III, Excluding Duplications

	Total Examined	Passed	Incom- plete	Percent- age Failed
1922.....	525	381	58	18.4
1923.....	775	594	79	14.7
1924.....	978	756	69	16.8
1925.....	1,167	915	50	20.2
1926.....	1,161	930	105	12.6
1927.....	1,248	947	142	14.4
1928.....	1,430	1,101	211	9.7
1929.....	1,723	1,280	319	8.8
1930.....	2,044	1,547	322	10.2
1931.....	2,218	1,632	410	9.7
1932.....	2,342	1,850	357	6.9
1933.....	2,377	1,806	280	9.6
1934.....	2,261	1,801	330	6.7
1935.....	2,568	1,831	408	6.6
1936.....	2,515	1,987	353	8.1
Totals.....	25,002	19,378	3,491	10.1

are not available, hospitals approved for intern training may accept graduates of European schools who have passed parts I and II of the examinations of the National Board of Medical Examiners."

Examinations in parts I and II are held at class A medical schools in any center where there are five or more candidates available, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 24, 1937

STATE BOARD REPORTS

In this issue the Council on Medical Education and Hospitals presents the thirty-fifth annual review of medical licensure. In the licensing examination of the graduates of sixty-seven medical schools in the United States and nine in Canada, 6,906 candidates were examined with 10.1 per cent failures. From the schools in the United States there were 5,705 examinees with 4.3 per cent failures. The New York Medical College and Flower Hospital, Georgetown University School of Medicine and Tufts College Medical School had among their graduates the unenviable record of 22.5 per cent, 21.8 per cent and 21 per cent, respectively, of failures.

The increment of the medical profession consisting of physicians licensed for the first time was 6,166, which is greater by 659 than the number so licensed in 1935. From table 6, showing the distribution of these physicians by sections, it is evident that practically half of the total were licensed in the Middle Atlantic group of states and in the East North Central group.

Although more than thirty-five years has elapsed since the publication of the Flexner report, there are still ten states which license graduates of unrecognized medical schools, Illinois leading with eighty-four and Massachusetts taking second place with seventy-seven. The percentage of licensees who are graduates of unrecognized schools has increased in the last four years from 6.3 to 11.7.

Six hundred and forty-four graduates of schools outside the United States and Canada were licensed. All but 190 of these were licensed in New York. Of those who tried the examinations, 35.4 per cent failed. The candidates represented seventy European faculties and three in Latin America. Among their graduates, in many instances, the record of failure was higher than 50 per cent.

The influence of the National Board of Medical Examiners has steadily increased since its inception in 1915. Five hundred and forty-seven certificates were awarded in 1936. Forty-two states and the District of Columbia have recognized the diploma of the National Board.

THE SIGNIFICANCE OF ALLERGY IN DISEASE

A field as new and as vigorously studied as that encompassed by the term "allergy" receives constant modification and revision.¹ Goldsmith² states that its meaning has now been broadened to include specific changes of sensitiveness to substances other than infective agents. It will not, however, stand being confined within the bonds of too strict a definition. In his view the most practical definition of allergy today is "a specific change in the degree of sensitiveness towards a definite substance or physical stimulus on the part of an individual or of one or more of his tissues." Dowling³ feels, however, that there is little prospect of arriving at a definition of allergy that can be universally accepted. In the one type of allergic reaction in which the mechanism is to a large extent known, namely, sensitivity to foreign proteins, the reaction has been demonstrated to be the result of antibody-antigen interaction. Opie⁴ also points out that the meaning of allergy varies widely with usage. He feels it desirable to apply this term as originally proposed by Pirquet to the changed state with relation to antigens that follows their introduction into the body rather than to the phenomena of sensitization alone. In this sense, Opie states, it includes both the tissue changes at the site of contact with the antigen and the acute functional disturbances such as anaphylactic shock, following dissemination of antigen by way of the blood stream. It is inadvisable, he believes, to apply it to changes not related to the phenomena of immunity.

The meaning of the term is inextricably bound up with the conception of what constitutes allergic etiology. According to Goldsmith, although allergy cannot be given a strict etiologic definition there is one etiologic idea which was an essential feature of Pirquet's conception; namely, that the altered reactivity was caused by the previous contact or contacts with the substance or infective agent. Dowling believes, however, that it is possible that sensitivity may be the result of circumstances other than previous contact; for example, an illness. Even when dealing with atopy, which is a term coined especially to include certain definite types of allergy, the meaning is not entirely uniform. An atopic dermatosis, according to Goldsmith, is an allergic disturbance in which the paramount causal factor is an inherited state called "atopy." Coca also demands for atopy the following attributes: (1) It is peculiar to man; (2) it is characterized by specific circulating antibodies or reagins, which are not precipitins but demonstrable by passive transmission; (3) there is familial and personal history of atopic dermatitis, asthma or hay fever; (4) there is eosinophilia in the blood and

1. Definition of Allergy, editorial, J. A. M. A. 104:2000 (June 7) 1935.

2. Goldsmith, W. N.: Allergy, Brit. J. Dermat. & Syph. 48:593 (Dec.) 1936.

3. Dowling, G. B.: Allergy, Brit. J. Dermat. & Syph. 48:601 (Dec.) 1936.

4. Opie, E. L.: Significance of Allergy in Disease, Medicine 15:477 (Dec.) 1936.

exudates; (5) intracutaneous tests are positive and patch tests negative; (6) there is relief on avoidance of offending circumstances and recurrence on exposure, and (7) atopens are usually protein. Dowling supplements this conception of atopy by citing the evidence indicating that atopic eczema is due to food allergy. Sensitivity to foods is common in atopic eczema, cutaneous tests to extracts of foods are often positive, and both children and adults have been said to improve on a lactovegetarian diet or on diets from which the foods to which they give positive reactions are rigidly excluded.

Allergy, according to Opie, is essential for the production of certain diseases. A heightened inflammatory reaction with accumulation of both granulocytes and mononuclear cells is characteristic of tissue sensitization. Such inflammation follows the usual course with primary exudation of polymorphonuclear granulocytes, followed by accumulation of histiocytes with ability to act as phagocytes. The course and lesions of certain infectious diseases are hence profoundly modified by the phenomena of sensitization. Allergic inflammation, which is the characteristic manifestation of sensitization of tissue, is produced by many micro-organisms, by products derived from them, by foreign proteins and perhaps by some other substances. With allergic inflammation, all the elements that constitute an inflammatory exudate, namely, serum, fibrin, granulocytes, including eosinophilic leukocytes, and histiocytes, accumulate with greater rapidity and in greater numbers than in the normal animal; antibodies if present in the blood are brought to the site of inflammation in increased quantity. Allergic phenomena, Opie believes, are necessary for the production of several common diseases, such as rheumatic fever, glomerular nephritis and lobar pneumonia in addition to tuberculosis and the other practically accepted allergic diseases.

One of the best understood and most fascinating examples of allergic disease is asthma. Since it is commonly true that broadened knowledge of a whole field may be obtained by concentrated effort in one branch, the latter syndrome has received unusual study. As an example of the excellent work now being done in asthma, that by Conybeare and Knott⁵ on the evaluation of the result of bacillary vaccines in asthma may be cited. Autogenous vaccines of gram-negative bacilli of the Friedländer type were found of benefit in the treatment of asthma in cases of moderate severity in which the bronchiolar infection with these organisms was demonstrated. Although specific hypersensitivity did not appear to be concerned in these results, the action of the vaccines in asthmatic patients is probably, to some extent, of a specific character.

The function and purpose of the allergic reactions are receiving close attention, and some attempt is being made to apply the results of laboratory experiments to patients. The increased understanding of tissue

reactions is a step forward. Concerning the allergic subject, however, it is not yet certain that his variation from the normal depends on anything more than a quantitative change.

ACTION OF VIBRION SEPTIQUE TOXIN IN ANIMALS

The anaerobe *Vibrion septique* produces a specific toxin that causes striking effects when inoculated intravenously into laboratory animals. This toxin is unusual in the rapidity of its action, especially on rabbits. A recent study of the gross and microscopic changes produced by the toxin in animals has been reported by Pasternack and Bengtson.¹ The animals used were rabbits, mice, guinea-pigs and pigeons; the results of the studies on these animals disclose certain facts that appear important in understanding the pathologic physiology of fatal human "gas" gangrene due to this organism.

The toxin of *Vibrion septique* has powerful cardio-toxic properties if not even a special affinity for the heart. This organ in almost all animals that survive any length of time shows lesions of some character. Intense capillary engorgement, conglutination and fusion of the red blood cells and occasionally hyaline thrombi are commonly noted. Scattered focal interstitial hemorrhages and some degree of edema are also frequently seen. Hyaline degeneration or Zenker's necrosis is the essential and most important lesion of the heart. It is found in some degree in almost all animals and is probably the cause of death and the explanation for the recorded pathologic changes. In intoxications of short duration the segment of a cell, a whole cell or a few scattered cells or cell groups may show the degeneration. In intoxications of many hours or of several days the musculature may show such advanced necrosis as to be unrecognizable. The picture, in fact, may resemble an intense suppurative process, but micro-organisms are never demonstrable. No previous references to the nephrotoxic properties of the specific toxin of *Vibrion septique* were found by these investigators. Intravenous inoculations, however, produce lesions early and with considerable regularity in rabbits, mice, guinea-pigs and pigeons. The severity of the lesions produced varies more or less with the duration of the intoxication. Gross lesions occur erratically but are not infrequently seen in intoxications of two or three days' duration. The perirenal tissues show hemorrhagic extravasations, and the kidneys red hemorrhagic and yellowish necrotic mottling. Microscopically the lesions in the different animals vary only in degree and in the rapidity with which they develop. The degenerative changes are virtually limited

5. Conybeare, E. T., and Knott, F. A.: Bacillary Vaccines in Asthma. *Guy's Hosp. Rep.* 86: 420 (Oct.) 1936.

1. Pasternack, J. G., and Bengtson, Ida A.: The Experimental Pathology and Pathologic Histology Produced by the Toxin of *Vibrion Septique* in Animals. *Bull.* 168, National Institute of Health, U. S. Treasury Dept., 1936.

to the cortex. Some degree of cloudy swelling and hydropic and colloid droplet degeneration of the convoluted tubules and ascending limbs of Henle's loops are usually found. Necrosis of the tubules may occur early in the intoxication but is more usual later. Glomerular congestion and more or less conglutination and later fusion of the red blood cells are seen in most of the animals. The liver shows lesions in only a small percentage of animals. When present they usually occur late and vary from advanced cloudy swelling to irregularly disposed foci of coagulation necrosis of variable size. The spleen is regularly distended with blood, and in a few instances gross hemorrhagic infarcts are present. Congestion, edema and hemorrhage occur inconstantly but not infrequently in the bone marrow. Lesions of the adrenal glands are rare in mice but are seen occasionally in rabbits as gross hemorrhages or hemorrhagic necroses.

Only the brains and cords of rabbits were examined. Ring hemorrhages in the cerebellum, pons and corpus striatum and necrosis of Purkinje cells are occasionally seen. The thymus in rabbits shows congestion, edema, hemorrhages, capillary hyaline thrombi, diffuse infiltrations of polymorphonuclear leukocytes and variable degrees of pyknosis and karyorrhexis of the lymphocytes of the cortex.

The characteristic pathologic changes determined in animals reveal a virulence of this toxin and effects demonstrable in vital organs which indicate the causes for its rapidly fatal action in human beings.

LIBERTY OR LICENSE IN MEDICAL EDUCATION

Freedom of action which contravenes the rights of others is no longer liberty. The state owes to its citizens the duty to protect them from ignorance and incompetence masquerading as medical skill. Health and life itself, our most treasured possessions, must be safeguarded, even at the expense of denying by statutory restrictions the freedom of every individual, trained or untrained, to practice medicine and certain other professions. If this is conceded, it follows that the state in the fulfilment of this obligation must satisfy itself beyond a shadow of doubt of the knowledge, skill and character of those whom it endorses and whose ability it guarantees. Such assurance is derived in part, but only in part, from licensing examinations. It rests in still greater degree on evaluation of the candidate's training and experience. Every state therefore has prescribed a certain minimum of preliminary and professional education as prerequisite to the licensing examination. In order to appraise the credentials of applicants, the state must directly or indirectly evaluate the institutions from which they come and determine which professional schools are in a position to satisfy the requirements of the law.

Recently two prominent educators¹ have expressed rather bitterly their views of so-called interference by standardizing agencies and demanded that universities be granted freedom to follow their own bent. President Capen says:

There has never been a just classification. Either the criteria are too limited, or they are not significant, or they are not applied with sufficient discrimination. The effect of an unfavorable rating is devastating to the institution which is the victim. Invariably its development is retarded. Invariably its morale is lowered. It may be permanently ruined.

The universities have brought on themselves a large part of the ills of which Dr. Capen complains through their own failure to distinguish between standards imposed for the protection of the most vital interests of the public in connection with such professions as law and medicine, and a host of other regulatory measures dealing with vocational training in which the public interest and the universities' responsibility are by no means so clear.

In the thirty-first annual report of the Carnegie Foundation for the Advancement of Teaching, on the other hand, Mr. William S. Learned² points out a fundamental and significant difference between "liberal" and "professional" education:

In professional education, on the contrary, standards of selection and of curriculum achievement both in amount and quality are the inexorable criteria of all procedure. The purpose of such education is to ensure a social service of superlative worth and competence. The agent is comparatively unimportant; regardless of his wishes or career, the community will, in the long run at least, choose those who can do most for it, and it is this impersonal and self-denying attitude which is accepted by all high-minded practitioners as expressing the finest ideals of any profession.

In looking into the intellectual status of prospective teachers, therefore, as of prospective doctors or lawyers, the social critic has the right to disregard the legitimate claims of the individual to a suitable education at his own level and to urge that, in the interests of the cause he serves, certain fixed standards of achievement be enforced. It is not the individual but the service which is at stake. To be sure, at any given time, these standards will be governed by the existing state of knowledge, the economic situation, and the social insight of the community concerned. Nevertheless, whatever they are and whatever they cost, their claim is paramount, in any inventory such as that which is now before us.

The advances in medical education during the last thirty years have been nothing short of phenomenal. History affords no parallel. In large measure these results have accrued through the process of classification applied by the Council on Medical Education and Hospitals and the systematic publication of the results in THE JOURNAL. Far from being "demoralizing" or "devastating," these activities have usually been stimulating and constructive. Those who clamor so loudly for liberty should never forget that in the training of lawyers, dentists and doctors the public has a paramount interest.

1. Capen, S. P.: Privileges and Immunities, *Bull. Am. A. University Professors*, March 1937, p. 190. Lipman, C. B.: Professional Associations and Associations of Professional Schools and Some Problems Which They Pose for American Universities, *J. Proc. & Addresses*, 38th Annual Conference, Association of American Universities, November 1936, p. 131.
2. Learned, W. S.: Educational Enquiry, Tested Achievement of Prospective Teachers in Pennsylvania, 31st Annual Report, Carnegie Foundation for the Advancement of Teaching, 1936, p. 29.

Current Comment

SUBACUTE COMBINED DEGENERATION IN PERNICIOUS ANEMIA

Great differences of opinion still exist concerning the reaction of the neurologic manifestations of pernicious anemia to specific therapy. A most thorough study of this problem is the report by Hyland and Farquharson¹ in the December issue of the *Archives of Neurology and Psychiatry*. The wide variation of opinion manifest in previous studies indicates, they believe, that there must be differences either in the treatment administered or in the interpretation of the clinical results. In addition to variation in the mode and quantity of antianemic substances prescribed, there are wide fluctuations in the duration and in the amount of rest, both of which are factors of great importance. The patients studied by these investigators included seventy-four persons with pernicious anemia associated with definite subacute combined degeneration of the spinal cord. On admission to the hospital the patients were kept at complete rest in bed, and potent liver preparations were administered as soon as the investigation was completed. Most patients in the series were given daily by mouth the extract derived from 1,000 Gm. of liver, sometimes receiving in addition from 113 to 142 Gm. of whole liver. The period of complete rest was gradually lengthened. Since 1930 all patients with moderate or severe subacute combined degeneration have been kept at complete rest in bed for an initial period of three months. Since it was found that great improvement occurred most commonly between the third and the sixth month of therapy, the patients were kept in the hospital for long periods, usually from four to twelve months. For purposes of description, the degree of degeneration was classified as mild, moderate or severe, according to the neurologic signs present when the patient was admitted to the hospital. The response to treatment was classified as marked improvement, which consisted of freedom from symptoms and definite improvement in the objective neurologic signs; moderate improvement, which consisted of definite improvement in the neurologic symptoms with little or no change in the principal physical signs, and slight or no improvement. Under the treatment outlined, forty-one patients improved markedly, sixteen showed moderate improvement, in nine the improvement was slight or stationary, and eight died shortly after admission. Analysis of the individual results made it clear that great improvement occurred most frequently in the cases of mild degeneration, but occasionally marked improvement was noted even in the severe cases. In general, the longer the duration of neurologic symptoms the more slowly did improvement become demonstrable, although individual exceptions were noted. The most satisfying symptomatic improvement was in the ability to use the legs. This recovery in gait was dependent on recovery of power, postural sense and muscle tone of the affected limbs. Of almost equal importance was the improvement of the disturbance of

the control of the sphincters that so commonly followed adequate treatment. The most persistent abnormal signs were the altered reflexes, which, however, did show a favorable trend in some cases. It was noteworthy that improvement in motor and sensory function frequently occurred in the absence of any recovery from abnormal reflexes. The authors therefore concluded that, by administration of liver therapy in adequate amounts and for sufficiently long periods, subacute combined degeneration can be prevented, its progression completely arrested and great improvement obtained, especially in cases of short duration.

CARBOHYDRATE METABOLISM AND VITAMIN C

With the development of a chemical method for the estimation of cevitamic acid which is reasonably specific, is adapted to examination of natural tissues and fluids and can be carried out in a short time, records have appeared of many investigations showing the localization of vitamin C in several tissues of the body. The adrenal cortex, pituitary and corpus luteum appear to be especially rich in this substance, although in lesser concentrations it is widely distributed throughout the organism. In view of its labile chemical constitution and widespread occurrence it seems safe to assume that cevitamic acid has an important function in the body, although at present this is but vaguely understood. Through the use of the synthetic vitamin in a wide variety of studies both clinical and experimental, an approach is being made to the elucidation of the part which this indispensable dietary factor plays in physiologic economy. A recent report by Sigal and King¹ indicates that carbohydrate metabolism is influenced by cevitamic acid. Guinea-pigs were used and the index of effect produced was the alteration in the blood sugar concentration (dextrose tolerance) after administration of dextrose by mouth. Each animal was its own control; the normal response was compared to that obtained after ten, fifteen and twenty days on a scurvy-producing ration. Then followed realimentation with vitamin C, and after ten and fifteen days on the adequate diet the dextrose tolerance was again measured. With deprivation of cevitamic acid there was a progressive decrease in the ability of the organism to dispose of the absorbed sugar, evident as early as ten days after removal of the vitamin from the experimental ration. On realimentation, after fifteen days, the blood sugar values during the tolerance test had returned to the normal values. As similar metabolic changes were not observed in other vitamin deficiencies, it is concluded that the effect is more or less specific for cevitamic acid. Older studies² indicated that the loss of body weight during the development of acute scurvy cannot be accounted for entirely by the accompanying partial inanition; the present investigation points to a fundamental difficulty in metabolism of absorbed carbohydrate as an explanation. The evidence emphasizes again the manifold importance of vitamin C in the chemistry of living processes.

1. Hyland, H. H., and Farquharson, R. F.: Subacute Combined Degeneration of the Spinal Cord in Pernicious Anemia, *Arch. Neurol. & Psychiat.* 36: 1166 (Dec.) 1936.

1. Sigal, A., and King, C. G.: *J. Biol. Chem.* 116: 489 (Dec.) 1936.
2. Anderson, W. E., and Smith, A. H.: *J. Biol. Chem.* 61: 181 (Aug.) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

State Medical Meeting at Del Monte, May 2-6.—The sixty-sixth annual session of the California Medical Association will be held at the Hotel Del Monte, Del Monte, May 2-6, under the presidency of Dr. Edward M. Pallette, Los Angeles. Out-of-state speakers include:

Dr. Jesse G. M. Bullowa, clinical professor of medicine, New York University College of Medicine, New York, A Summary of Changes in the White Blood Cells in Various Diseases.

Dr. Norman F. Miller, professor of obstetrics and gynecology and head of the department and Bates professor of diseases of women and children, University of Michigan Medical School, Ann Arbor, The Uterine Cervix: Its Disorders and Their Management.

Dr. Cyrus C. Sturgis, professor of internal medicine and director of the department, University of Michigan Medical School, Ann Arbor, Clinical-Pathologic Conference.

Dr. Louis H. Maxson, Seattle, Spinal Anesthesia—Present Status.

In addition to the independent sectional programs, the following sections will combine in a symposium on pneumonia: medicine; surgery; obstetrics and gynecology; pediatrics; pathology; eye, ear, nose and throat, and radiology. Included among the California speakers on the program will be:

Drs. William J. Kerr, Paul A. Gliebe and James W. Dalton, San Francisco, Some Physical Phenomena Associated with Anxiety States and Their Relationship to Hyperventilation.

Drs. Mark A. Glaser and Clinton H. Thienes, Los Angeles, Experimental and Clinical Studies on Repair of the Dura Mater.

Dr. Emile F. Holman, San Francisco, Recent Advances in the Surgical Treatment of Pulmonary Tuberculosis Through Selective Collapse by Partial Thoracoplasty.

Dr. Frank W. Lynch, San Francisco, Radium Reaction in Cancer of the Cervix.

Dr. Wilber F. Swett, San Francisco, Use of Snake Venom in Post-operative Hemorrhage of the Eye.

Dr. Clarence G. Toland, Los Angeles, The Explosion Hazard in Anesthetic Gas Mixtures.

Mr. William M. Rains, Los Angeles, What the Doctor Should Know About the Law for His Own Protection.

The Past Presidents' Breakfast will be held Tuesday morning and the President's Dinner Tuesday evening. Entertainment will include golf and a skeet shoot. The annual conference on pathology, under the auspices of the cancer commission of the state medical association, will be held May 2 and the radiologic conference, also sponsored by the commission, will take place the same day. The woman's auxiliary will hold its eighth annual session concurrently with the state association.

CONNECTICUT

The Blood Test Marriage Law.—In the first eleven months of 1936 there were 7,347 marriages compared with 11,109 for the similar period in 1935, according to Dr. Stanley H. Osborn, Hartford, state health commissioner. This is the first year in which a blood test was mandatory before the issuance of a marriage certificate. The importance of the law is reflected in the data available showing that many of the persons found with syphilis had no knowledge of the infection prior to the blood test. For the period reported on, syphilis was positively diagnosed in forty-four persons, twenty-four men and twenty women. The law went into effect Jan. 1, 1936.

Meeting on Obstetrics and Gynecology.—The New England Obstetrical and Gynecological Society will hold its spring meeting in Hartford, April 28. The program will include the following speakers, all of Hartford:

Dr. William P. Daly, Transperitoneal Cesarean Section.

Dr. James F. Lynch, Etiology of Breast Tumor from an Endocrinologic Viewpoint.

Dr. Richard C. Buckley, Cerebral Neoplasms as a Complication of Pregnancy.

Dr. Stanley B. Weld, Fibroma of Ovary with Ascites and Pleural Effusion.

Dr. Thomas N. Hepburn, Operation for Prolapse of the Urethra.

Thomas H. Bissonnette, Ph.D., J. Pierpont Morgan professor of biology, Trinity College, Hartford, will be the dinner speaker; his subject will be "Sexual Photoperiodicity in Animals."

Gifts to Yale University.—Gifts amounting to about \$170,000 were announced February 23 by the Yale University Corporation. They included \$67,916 from the Rockefeller Foundation for immediate use in the university for research and publication, \$6,750 from the Josiah Macy Jr. Foundation for medical science research, \$8,459.57 from the Rockefeller

Foundation for research in the medical school, \$4,900 from the Carnegie Corporation of New York City for photomicrography, and \$2,500 from Jeremiah Milbank of New York for poliomyelitis research.

FLORIDA

Society News.—Dr. Benjamin Jablons, New York, addressed a joint meeting of the Brevard, Duval, Orange, Seminole, St. Johns and Volusia county medical societies, April 13, on "Treatment of Nephritis and Its Complications with Tubulin (A New Principle Derived from Mammalian Kidney)."

State Medical Election.—Dr. William H. Spiers, Orlando, was chosen president-elect of the Florida Medical Association at its recent annual meeting in St. Petersburg, and Dr. Edward Jelks, Jacksonville, was inducted into the presidency. Other officers are Drs. Norval M. Marr, St. Petersburg; Reuben N. Burch, Miami, and George L. Cook, Tampa, vice presidents, and Dr. Shaler A. Richardson, Jacksonville, secretary, reelected. The next annual session will be held in Miami.

GEORGIA

Gift to Chinese Medical Students.—Dr. Theodore B. Davis, Newnan, has given his collection of instruments and medical books, accumulated during his fifty-six years of practice, to Dr. Fred P. Manget, for many years a medical missionary in Huchow, China, for the use of students in Dr. Manget's hospital. Newspapers stated that the gift marks the retirement of Dr. Davis from active practice.

Fulton County Meetings.—Dr. James J. Clark, Atlanta, presented a paper before the Fulton County Medical Society, April 1, entitled "The Roentgenological Treatment of the Leukemic States." Dr. Joseph Yampolsky, Atlanta, discussed "Acute Hemorrhagic Nephritis in Negro Children with Special Emphasis on Treatment" before the society, March 18, among other speakers; Dr. John D. Martin Jr., Atlanta, discussed "Congenital Anomalies of the Small Intestine," March 4, and Dr. Christian P. Segard, Leonia, N. J., addressed the pediatric section, March 11, on "Recent Studies in Nutrition with Special Reference to Vitamins and Catalysts."

ILLINOIS

Venereal Disease Clinics.—The first of a series of clinics to be used in venereal disease control was opened in Cairo April 1 by the state health department. Although treatment will be available only to persons unable to pay, a generalized campaign will be centered at the clinic. Financed jointly by the local and state governments, the clinic at Cairo will be under the direct supervision of Dr. Charles L. Weber, city health officer, while a governing board of three citizens and an advisory board of sixteen, representing all civic and professional interests, will determine the policies and direct the program. Blood tests will be made free of charge for any person desiring them. It is expected that eleven clinics will be established throughout the state before July 1. The establishment of these clinics is a part of the state's participation in the national campaign against venereal disease.

Chicago

Personal.—Dr. Gaius E. Harmon, epidemiologist with the Chicago board of health, has resigned to accept a similar position with the Detroit Department of Health.

Society News.—Dr. David O. N. Lindberg, Decatur, discussed "The Mantoux Test: Interpretation in Infection and Disease" before the Chicago Tuberculosis Society, April 15. —At a meeting of the Chicago Pathological Society, April 12, Dr. Dallas B. Phemister spoke, among others, on "Composition of Gallstones Formed in the Common Duct." —Dr. Hans H. F. Reese, Madison, Wis., addressed the Chicago Neurological Society, April 15, among others, on "Insulin Shock Therapy of Schizophrenia." —Roentgenographic examination in obstetrics was discussed before the Chicago Gynecological Society, April 16, by Drs. Robert P. Ball and Howard C. Moloy, New York, and Paul C. Hodges and Adolph Hartung, Chicago. —Dr. Florimond J. LeBlanc addressed the McDonagh Society for Clinical Research, April 16, on "Oxidation and Reduction in Colloidal Chemistry." —The Chicago Ophthalmological Society, among other speakers, was addressed, April 19, by Drs. Theodore E. Walsh on "Some Results of Intranasal Dacryocystotomy in Dacryocystitis" and Raymond Carmody, "Ophthalmoplegia and Exophthalmos as a Complication of Herpes Zoster Ophthalmicus." —Dr. George Halperin addressed the Jewish Physicians Fellowship Club of Chicago, April 12, on "Educational Trends in the U. S. S. R."

INDIANA

Surveys at Central State Hospital.—Two surveys are under way at the Central State Hospital, Indianapolis, one on the causes of dementia praecox and the other on the treatment of neurosyphilis. The former is being conducted by the National Committee on Mental Hygiene under a grant from the Supreme Council of Thirty-Third Degree Scottish Rite Masons, Northern Jurisdiction, while the second is under the auspices of the U. S. Public Health Service, it is reported.

Joint Meeting on Tuberculosis.—The Indianapolis Medical Society and the Indiana Tuberculosis Association held a joint meeting in Indianapolis, April 13. The speakers included Drs. Sayers J. Miller, director of student health service, Purdue University, La Fayette, on "The Tuberculosis Problem in Universities," and Alfred Friedlander, dean and professor of medicine, University of Cincinnati College of Medicine, "Modern Methods in the Diagnosis of Pulmonary Tuberculosis." The following day the Indiana Trudeau Society met with the state tuberculosis association and the speakers included:

Dr. Oscar O. Miller, Louisville, Ky., Unusual X-Ray Lesions in the Chest.

Dr. Orva T. Kidder, Fort Wayne, Early Diagnosis and Collapse Therapy.

Dr. Charles J. McIntyre, Indianapolis, Two Interesting Cases of Tuberculous Pneumonia.

Dr. James H. Stygall, Indianapolis, Basal Lesions.

Society News.—Dr. Willis C. Campbell, Memphis, discussed "Treatment of Fractures of the Neck of the Femur" before the Fort Wayne Medical Society in Fort Wayne, March 2.—At a meeting of the Fayette-Franklin Medical Society in Connerville, March 9, Dr. Francis X. Siegel, Cincinnati, spoke on common diseases and injuries of the eye.—The Floyd County Medical Society was addressed in New Albany, March 12, by Dr. Harry E. Voyles, New Albany, on diagnosis of gallbladder disease.—Dr. Frank C. Walker, Indianapolis, discussed "Causes of Vaginal Discharge and Their Treatment" before the Wayne-Union Counties Medical Society, Richmond, March 21.—Dr. Clyde G. Culbertson, chief of the bacteriologic laboratory of the state board of health, discussed the mechanism of agglutination and isohemagglutinins before the Indianapolis Society of Medical Technologists, February 24.—Dr. John R. Brayton, Indianapolis, discussed common skin diseases and their treatment before the Jay County Medical Society at Portland, March 5.

IOWA

Personal.—Dr. Regnar M. Sorenson, Washington, has been appointed medical director of the recently organized health district number 1, succeeding Dr. William M. Trotter, Maxwell. The district comprises the counties of Lyon, Osceola, Sioux, Plymouth, O'Brien and Cherokee.—Dr. Arthur C. Schach, Burlington, has resigned as director of the Des Moines County health unit.

Lectures on Nutrition.—Dr. William Weston, Columbia, S. C., addressed the Des Moines Academy of Medicine and the Polk County Medical Society in Des Moines, April 7, on "Role of Iodine in Nutrition." He discussed "General Problems in American Nutrition" before the Linn County Medical Society in Cedar Rapids, April 8, and "Adulterated and Deficient Foods" before the Iowa-Illinois District Medical Society, Rock Island, Ill., April 9.

State Department Has Serum Center.—The Iowa State Department of Health recently established a serum center in Des Moines and began the processing of convalescent scarlet fever serum February 20. At regular intervals since September 1936 clinics have been held in Sioux City, Waterloo, Decorah and Des Moines to obtain blood from convalescent scarlet fever patients. For some time the state department of health had been distributing convalescent serum to physicians through the cooperation of the Samuel Deutsch Serum Center at Michael Reese Hospital, Chicago.

KANSAS

New Health Officers.—The following health officers have recently been appointed:

Dr. J. Carroll Montgomery, Wichita, of Sedgwick County.

Dr. Lloyd H. Sarchet, Wellington, Sumner County.

Dr. Frederick E. Dargatz, Kinsley, Edwards County.

Dr. Earl R. Beiderwell, Belleville, Republic County.

Dr. Spencer B. Dykes, Esbon, Jewell County.

Dr. Edgar M. Sutton, Salina, Saline County.

Dr. Willis L. Jacobus, Ottawa, Franklin County.

Dr. Richard F. Boyd, Cimarron, Gray County.

Dr. John G. Swails, Wathena, Doniphan County.

Dr. Ernest C. Moser, Holton, Jackson County.

Dr. Guy B. McIlvain has been appointed city health officer of Clay Center to succeed the late Dr. Robert Algie. Dr. Laurence F. Steffen, St. Marys, has been placed in charge of the newly created full time health unit in Butler County.

KENTUCKY

Personal.—Dr. Earl L. White, U. S. Public Health Service, has been appointed health officer of Crittenden County with headquarters at Marion.—Dr. Joseph M. Ferguson has resigned as medical officer in charge of the Veterans' Administration Facility at Lexington, Ky., because of ill health. Dr. Letcher E. Trent, chief medical officer of the facility at Roanoke, Va., has been transferred to Lexington.

Pediatric Course in Louisville.—A graduate course in diseases of children will be offered at the Children's Free Hospital, Louisville, beginning April 28 and continuing each Wednesday for ten weeks. Members of the staff will discuss interesting cases in the hospital and new methods of treatment will be demonstrated. The course is sponsored by the Kentucky State Medical Association. There will be a charge of \$5. Further information may be obtained from Dr. Philip F. Barbour, Heyburn Building, Louisville.

LOUISIANA

Society News.—At a meeting of the Third District Medical Society in Breaux Bridge, March 4, Drs. Howard R. Mahorner and John G. Pratt, both of New Orleans, discussed management of goiter and the importance of diagnosis in hematuria.—The Tri-Parish Medical Society was addressed in Lake Providence, March 2, by Dr. Guy L. Odom, Jackson, among others, on "General Paralysis of the Insane and the Treatment by Means of Artificial Fever Therapy."

Director of Extension Teaching Appointed.—Dr. Maxwell E. Lapham, Jackson, Miss., has been appointed director of the department of extension graduate teaching at Tulane University, New Orleans, it is reported. He has also been made assistant professor in the graduate school of medicine and the medical school. Dr. Lapham is 36 years of age. In 1925 he graduated from the University of Pennsylvania School of Medicine, Philadelphia, where he served as instructor in obstetrics. In 1932 he was appointed clinical instructor in antepartum and postpartum work to conduct courses for practicing physicians under the auspices of the Medical Society of Virginia, the Medical College of Virginia and the University of Virginia. In 1935 Dr. Lapham joined the staff of the Mississippi State Board of Health to direct a graduate course of obstetrics throughout the state. This program was financed cooperatively by the Commonwealth Fund, the Mississippi State Medical Association, the state board of health and Tulane University School of Medicine.

MAINE

Lectures on Obstetrics.—The division of child hygiene of the state department of health is sponsoring three programs before the Oxford County Medical Association, the first of which was held in Rumford, March 17. The lecturers were Drs. Roland B. Moore and Thomas A. Foster, both of Portland, and the subjects covered antepartum care and normal delivery; motion picture films on the new-born were shown by Dr. Herbert R. Kobes, Augusta, under whose supervision the programs are being offered. The second in the series was to be held in April and the third in May.

MARYLAND

Society News.—Frank W. Notestein, Ph.D., lecturer, School of Public and International Affairs, Princeton University, Princeton, N. J., gave one of the De Lamar lectures in hygiene at Johns Hopkins University School of Hygiene and Public Health, April 6. His subject was "Differences in the Fertility of Important Classes of the Population."

Increase in Communicable Diseases.—There were 47,264 cases of "notifiable" diseases reported to the Maryland State Department of Health in 1936 as compared with 39,487 in 1935. The city of Baltimore reported a total of 29,173, and the counties of the state 18,091. Increases were noted for measles with a total of 7,600 cases as compared with about 2,350 in 1935; 4,348 cases of whooping cough as compared with 1,621 in 1935, and venereal diseases, 12,464 as against 11,985 in the previous year. Meningitis increased from 297 cases in 1935 to 476 in 1936, while typhoid dropped from 483 in 1935 to 269 in 1936. Decreases were also noted for tuberculosis from 3,063 in 1935 to 2,759 in 1936, scarlet fever from 3,693 in 1935 to 2,728 in 1936 and poliomyelitis from 107 in 1935 to thirty-seven in 1936. More than nine tenths of the sickness from communicable diseases reported in the state in 1936 was divided among the venereal diseases, including 9,433 cases of syphilis, which accounted for 25 per cent of the total; children's diseases with 25,338 cases, or more than 50 per cent of the total; the pneumonias with 3,300 cases, tuberculosis with 2,759 and influenza with 822 cases accounted for 15 per cent of the total illness.

MASSACHUSETTS

Hospital News.—The Massachusetts Hospital Association was made permanent February 25, when a constitution and by-laws were approved. The association was organized on a temporary basis a year ago. The officers chosen then were unanimously reelected at the recent meeting: Dr. Henry M. Pollock, Boston, president; Bertha W. Allen, R.N., vice president; Rev. Warren F. Cook, secretary-treasurer, and Dr. Norman C. Baker, Boston, secretary.

Society News.—Dr. Frank A. Pemberton, Boston, addressed the Pentucket Association of Physicians in Haverhill, April 8, on "Progress in Gynecology." Dr. Howard M. Clute, Boston, discussed "Problems of the Upper Part of the Abdomen" before the society March 11.—At a meeting of the Neisserian Medical Society of Massachusetts in Boston, March 31, Dr. Nels A. Nelson, Boston, discussed the "Treatment of Gonorrhea in the Male."—A tag day was held in Boston, March 27, as part of the state campaign for cancer control which is being conducted under the auspices of the Women's Field Army of the American Society for the Control of Cancer.

Memorial to Dr. Clapp.—A memorial tablet in honor of the late Dr. Frank H. Clapp was unveiled March 20 at the Nelson Memorial Library, North Grafton, by Barbara Sanford, his granddaughter. The speakers included Dr. Harlan L. Paine, superintendent of the Grafton State Hospital; Mr. Isidore O. Senecal, president of the Maroon Club, who sponsored the idea of the memorial tablet; Dr. Roy J. Ward, president of the Worcester District Medical Society, and Dr. Enos H. Bigelow, Framingham, formerly president of the Massachusetts Medical Society. Dr. Clapp was for many years a member of the school committee and board of health of North Grafton. He died Feb. 26, 1936, aged 74.

MINNESOTA

State Medical Meeting at St. Paul, May 2-5.—The eighty-fourth annual meeting of the Minnesota State Medical Association will be held at the St. Paul Auditorium, St. Paul, May 2-5, under the presidency of Dr. Alfred W. Adson, Rochester. Sunday the house of delegates will be addressed by Drs. Edward H. Skinner, Kansas City, on "How the Kansas City Profession is Meeting Social Security Problems," and Olin West, Secretary and General Manager, American Medical Association, Chicago, "Better Health Activities." The Russell D. Carman Memorial Lecture will be delivered Monday morning by Dr. Skinner on "Reflections upon the Roentgenology of Fractures." The Citizens Aid Society Memorial Address will also be presented Monday morning. The speaker will be Dr. Robert S. Stone, associate professor of roentgenology, University of California Medical School, San Francisco, on "Irradiation Therapy of Tumors with a Consideration of the Possibility of Supervoltage X-Rays." Monday there will be a Congress of Allied Professions, in which nurses, dentists, pharmacists, hospital executives and social workers will consider factors involved in distribution of medical care. At the evening session the following speakers will discuss "Suggested Solutions of America's Health Problems":

Rev. Alphonse M. Schwitalla, S.J., dean, St. Louis University School of Medicine.

Dr. Martha M. Eliot, assistant chief of the Children's Bureau, U. S. Department of Labor, Washington, D. C.

C. Rufus Rorem, Chicago, Ph.D., director, committee on hospital service, American Hospital Association.

Dr. Maxwell J. Lick, Erie, Pa., president of the Medical Society of the State of Pennsylvania.

At a public health meeting Tuesday evening the speakers will be Father Schwitalla on "The Child and the Physician"; Dr. Nathan B. Van Etten, New York, Speaker of the House of Delegates, American Medical Association, "The Medical Citizen"; Dr. Raymond A. Vonderlehr, Washington, D. C., U. S. Public Health Service, "What the Public Can Do in the Present Campaign for Control of Syphilis," and Dr. Walter C. Alvarez, Rochester, "Quacks I Have Met." The following lectures will also be delivered by guest speakers during the meeting:

Dr. John M. Wheeler, New York, professor of ophthalmology, Columbia University College of Physicians and Surgeons, New York, "Important Injuries About the Eye."

Dr. Francis D. Murphy, clinical professor and director of the department of medicine, Marquette University School of Medicine, Milwaukee, "Hypertensive Heart Disease—Its Clinical-Pathologic Manifestations."

Dr. Lick, "The Doctor Looks at Social Security."

Dr. Van Etten, "Medical Care for All Americans."

Theodore Christianson, Minneapolis, former governor of Minnesota.

In addition to these special features, which include also a Northwest Industrial Medical Conference, Wednesday, papers will be presented by many Minnesota physicians. The woman's auxiliary will hold its annual meeting during the week.

NEW MEXICO

Head of Child Health Division Appointed.—Dr. Hester B. Curtis has been appointed to take charge of the division of child health in the Bureau of Public Health. Dr. Curtis graduated from Yale University School of Medicine in 1932 and was a student at the Harvard School of Public Health, 1935-1936. At the time of her appointment she was associated with the New York State Department of Health, Albany.

NEW YORK

Society News.—The Westchester Society of Gastro-Enterology was organized recently with Drs. Frederic M. Johnson, Yonkers, as president, and Vera L. Collins, Yonkers, secretary. This is the tenth affiliated chapter of the National Society for the Advancement of Gastro-Enterology.—The Academy of Stomatology of Eastern New York was recently organized and held its first scientific meeting in Albany, March 4. The speakers were Dr. Joseph Jordan Eller, New York, on "Dermatologic Lesions of the Mouth and Lip"; Harry Gullifer, D.D.S., Boston, "The Adamantinomas of the Jaw," and Dr. Hayes E. Martin, New York, "Diagnosis and Treatment of Intra-Oral Cancer."—Drs. Isabel Knowlton and Harriet McIntosh, New York, addressed a meeting of the council of the Woman's Medical Society of New York State recently in New York City. Guests of honor were Drs. Maude E. S. Abbott, formerly assistant professor of medicine and curator of the Museum of the History of Medicine at McGill University, Montreal, and Mabel M. Akin, Portland, Ore.

New York City

Personal.—Dr. Adolph G. G. De Sanctis was honored by a dinner, March 14, at the Hotel Ambassador, given by the Association of Italian Physicians in America, marking his accession to the presidency of the Medical Society of the County of New York.

Biggs Memorial Lecture.—The twelfth Hermann Michael Biggs Memorial Lecture of the New York Academy of Medicine was delivered April 1 by Henry C. Sherman, Ph.D., Mitchell professor of chemistry, Columbia University. His subject was "The Bearing of the Results of Recent Studies in Nutrition on Health and Length of Life."

Society News.—Drs. Harry Wessler, New York, and Carleton B. Peirce, Ann Arbor, Mich., addressed the New York Roentgen Society, March 15, on "Pathogenesis of Tuberculosis" and "The Oblique Projection of the Thorax; An Anatomic and Roentgenologic Study," respectively.—Drs. Russell S. Boles and Clifford B. Lull, Philadelphia, addressed the Medical Society of the County of Kings, March 16, on "Hepatic Cirrhosis" and "The Hemorrhages of Pregnancy," respectively.—The Brooklyn Thoracic Society heard a discussion, March 19, of "An Antigen for the Determination of Activity in Tuberculosis," by Drs. Benjamin Gruskin, Philadelphia, Richard H. Bennett, Emanuel Schwartz and Alexander L. Louria.—A symposium on hernia was presented at a meeting of the New York Surgical Society, March 24; the speakers were Drs. Roderrick V. Grace, Vansel S. Johnson, Bradley L. Coley, Carl G. Burdick, David H. M. Gillespie, Norman L. Higinbotham and Allen O. Whipple.

NORTH CAROLINA

State Medical Meeting at Winston-Salem.—The eighty-fourth annual session of the Medical Society of the State of North Carolina will be held at Winston-Salem, May 3-5, under the presidency of Dr. Charles F. Strosnider, Goldsboro. The guest speakers who will address general and sectional meetings include:

Dr. Arthur M. Shipley, Baltimore, "The Biliary Duct Apparatus as a Surgical Problem."

Dr. Algernon B. Reese, New York, "The Operative Treatment of Primary Glaucoma."

Dr. Edward A. Schumann, Philadelphia, "Leaves from a Gynecologist's Notebook."

Dr. David M. Davis, Philadelphia, "Syphilis and Gonorrhea as Public Health Problems."

Dr. John A. Ferrell, New York, "Experimental Approaches Under Way Toward More Efficient Public Health Administration."

Dr. Thomas A. Shallow, Philadelphia, "The Surgical Approach to Foreign Bodies in the Gastro-Intestinal Tract."

The woman's auxiliary will hold its annual meeting during the week and the North Carolina Public Health Association will meet Monday May 3. Tuesday evening there will be a testimonial dinner to Dr. Louis B. McBrayer, Southern Pines, secretary of the society for many years, followed by the president's reception. Headquarters will be at the Robert E. Lee Hotel.

OHIO

Personal.—Dr. Millard C. Hanson, health officer of Mansfield, has been appointed health officer of Toledo, effective April 15.—Dr. Edward O. Morrow, Canton, was recently honored by a testimonial dinner given by the Stark County Medical Society, celebrating his fiftieth anniversary in the practice of medicine.—Dr. Herbert E. Koepke, Cadiz, has been appointed health commissioner of Harrison County, and Dr. William Edward Blair, Lebanon, of Warren County.—Dr. Stewart G. Patton, North Jackson, has been appointed health officer of Mahoning County to succeed Dr. George Y. Davis, Youngstown.

PENNSYLVANIA

Society News.—Dr. Martin E. Rehfuess, Philadelphia, addressed the Cambria County Medical Society, Johnstown, April 8, on "Diagnostic Problems in Gastro-Enterology."—Dr. Charles L. Brown, Philadelphia, addressed the Lackawanna County Medical Society, Scranton, March 30, on hypertension. Dr. Dean D. Lewis, Baltimore, spoke March 15 on tumors of bone.—Dr. Grover C. Weil, Pittsburgh, addressed the Medical Society of Franklin County, Waynesboro, March 19, on compound fractures.—Dr. Franklin Howard Westcott, New York, addressed the Lebanon County Medical Society, Lebanon, April 13, on "Allergy in General Practice with Treatment of Pollinosis and Pollen Asthma."—Dr. Vincent T. Curtin, Scranton, addressed the Northampton County Medical Society, Easton, April 16, on "Fads and Fancies of Infant Feeding."—Dr. Frank A. Evans, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 1, on "Treatment of Psychoneurosis in General Practice."

Philadelphia

Personal.—Dr. Louis Lehrfeld has resigned as epidemiologist of the Philadelphia Department of Public Health after twenty-two years' service. Dr. Lehrfeld has been appointed attending surgeon to the Wills Eye Hospital to fill the vacancy caused by the resignation of Dr. Francis Heed Adler, recently appointed professor of ophthalmology at the University of Pennsylvania School of Medicine.—Drs. Isidor P. Strittmatter, Arthur C. Morgan and Thomas R. Currie were guests of honor at the annual dinner of the Northern Medical Association, the oldest medical society in Philadelphia, March 15. The association is 91 years old. Dr. Strittmatter was unable to attend the dinner because of illness.—Dr. Frank C. Hammond, dean emeritus of Temple University School of Medicine, was the guest of honor at a dinner given by the Hammond Pre-Medical Society, March 8, in honor of his sixty-second birthday. Dr. Charles L. Brown, professor of medicine, was the principal speaker.—Dr. Garfield G. Duncan has been appointed chief of service at the Pennsylvania Hospital, filling the vacancy made by the death of Dr. Thomas McCrae in June 1935.—Dr. Joseph C. Doane has been elected an associate editor of the *Pennsylvania Medical Journal*.

SOUTH CAROLINA

Yellow Fever Volunteer Dies.—Charles G. Sonntag of Jackson, one of the volunteers who submitted to inoculation with yellow fever through mosquito bites in the experiment conducted by Major Walter Reed in Cuba in 1900-1902, recently died at the age of 64. Sonntag took yellow fever but survived and has been a farmer for many years. In 1931 he received a gold medal authorized by Congress in recognition of his service in the yellow fever experiment.

TENNESSEE

Personal.—Dr. Milton W. Williamson, Redboiling Springs, recently associated with the Kentucky State Board of Health and formerly with the U. S. Public Health Service, has been appointed associate city health director of Chattanooga.—Dr. Joseph C. Tatum, Waverly, has resigned as health officer of Humphreys County to become health officer of Giles County, succeeding Dr. John U. Speer.—Dr. Robert Knox Galloway, recently health officer of Williamson County and city health officer of Franklin, has been appointed director of health and hygiene in the public schools of Nashville, it is reported.—Dr. Waller S. Leathers, dean and professor of preventive medicine and public health, Vanderbilt University School of Medicine, Nashville, has been reappointed a member of the National Advisory Health Council of the U. S. Public Health Service.—Dr. Edward L. Turner, recently professor of internal medicine in the American University, Beirut, Syria, has been appointed professor and head of the department of medicine at Meharry Medical College, Nashville.

VIRGINIA

Social Work Conference.—The division of public health and medical care of the Virginia Conference of Social Work, of which Dr. Basil B. Jones, Richmond, is chairman, arranged a program on syphilis at the annual meeting of the conference in Richmond April 8-10. Among the speakers were Drs. Dudley C. Smith, Charlottesville; Kinloch Nelson, Richmond; Thomas L. Gemmill, Petersburg; Lonsdale J. Roper, state department of health, Richmond; Ennion S. Williams, Richmond, and Mrs. Norman Ingraham, social worker, University of Pennsylvania Hospital, Philadelphia. The Virginia Mental Hygiene Society also sponsored a program on which the speakers included Drs. Howard R. Masters, Richmond, and David C. Wilson, Charlottesville.

WEST VIRGINIA

Society News.—Dr. Leo Huth, Follansbee, addressed the Brooke County Medical Society, Wellsburg, March 10, on a new method of administering scopolamine in Parkinson's disease.—Dr. John C. Matthews, Huntington, addressed the Kanawha Medical Society, Charleston, March 9, on "Treatment of Gonorrhea in the Male" and Dr. Hugh B. Robins, Charleston, on "Syphilis and Its Social Problem."—At a meeting of the Logan County Medical Society, Logan, March 10, Dr. Walter W. Point, Charleston, spoke on complications of pregnancy and Dr. Andrew E. Amick, Charleston, on child health and social security.—Dr. Will A. Quimby, Wheeling, addressed the Marshall County Medical Society, March 9, in Moundsville, on prevention and treatment of cancer.

GENERAL

Resolution Defines Adequate Diagnosis of Eye Disease.—A resolution adopted at a meeting of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association in New Orleans, February 23, reads in part as follows:

That it is the sense of the Joint Committee on Health Problems in Education and the American Medical Association . . . that the safety of the eyes of school children, the adequate diagnosis of disease and the correct fitting of glasses require examination of children's eyes (beyond rough visual tests performed by teachers or nurses) by a licensed doctor of medicine and, upon his recommendation, by a medical specialist in diseases of the eye, properly known as an oculist or ophthalmologist.

Board to Recommend Health Officers.—A special board has been appointed to advise the United States Conference of Mayors in the appointment of public health officers. Dr. Joseph W. Mountin of the U. S. Public Health Service is chairman of the board; other members are Drs. Allen W. Freeman, dean of the Johns Hopkins University School of Hygiene and Public Health, Baltimore; Wilson G. Smillie, professor of public health administration in the Harvard School of Public Health and recently appointed professor of public health and preventive medicine at Cornell University Medical College, New York; Huntington Williams, health commissioner of Baltimore, and John L. Rice, health commissioner of New York.

National Academy of Sciences.—The National Academy of Sciences will hold its annual spring meeting in Washington, April 26-27. Among the papers of medical interest to be presented are:

- Dr. Simon Flexner, New York, Immunity and Reinfection in Experimental Poliomyelitis.
- Dr. Howard W. Haggard and Leon A. Greenberg, Ph.D., New Haven, Conn., The Effects of Alcohol as Influenced by Blood Sugar.
- Dr. George H. Whipple, Rochester, N. Y., The Romance of Hemoglobin.
- Dr. Francis G. Benedict and Robert C. Lee, Boston, Body Fat as a Factor in Heat Production.
- Edmund Newton Harvey, Ph.D., Alfred L. Loomis, LL.B., and Garret A. Hobart III, Princeton, N. J., and Loomis Laboratory, Tuxedo Park, N. Y., Cerebral Processes During Sleep as Studied by Human Brain Potentials.
- Robley D. Evans, Cambridge, Mass., Elimination of Radium Impurities from the Blood Stream.

Association on Mental Deficiency.—The sixty-first annual convention of the American Association on Mental Deficiency will be held at Atlantic City, May 5-8, with headquarters at Haddon Hall. Among the speakers on the program will be:

- Dr. I. Newton Kugelmass, New York, Management of Epilepsy in Children.
- Dr. Frank V. Willhite, Redfield, S. D., A Program for the Social Control of the Mentally Deficient.
- Dr. George E. McPherson, Belchertown, Mass., Heredity in Mental Deficiency.
- Dr. Adrien S. Bleyer, St. Louis, Maternal Age and Mongolism, a Study of 3,000 Cases.
- Dr. George A. Jervis, Thiells, N. Y., Inherited Biochemical Deficiencies in Certain Types of Feeble-minded.
- George Keezer, Ph.D., Vineland, N. J., Electrical Phenomena of the Brain Among the Feeble-minded.
- Dr. Clarence A. Mills, Cincinnati, Climatic and Weather Factors in the Production and Manifestations of Mental Deficiency.

Meetings in Atlantic City.—The annual informal dinner and general meeting of the American Board of Obstetrics and Gynecology will be held at the Hotel Claridge, Atlantic City, Wednesday evening, June 9. Dr. Charles Gordon Heyd, New York, President of the American Medical Association, will be the principal speaker. Diplomates of the board and others interested in the specialty are invited. Tickets may be obtained at the door at \$2 each.—The Alpha Kappa Kappa Medical Fraternity will hold an alumni luncheon at the Hotel Ambassador, Atlantic City, N. J., June 9, at 12:15 p. m. The entire international council of the fraternity will attend.—Phi Delta Epsilon will hold its annual luncheon during the session of the American Medical Association at the Ritz Carlton, Atlantic City, Thursday, June 10.

Meeting on Allergy.—The Society for the Study of Asthma and Allied Conditions will hold its thirteenth annual meeting at the Hotel Chalfonte-Haddon Hall, Atlantic City, May 1. Dr. Milton B. Cohen, Cleveland, president, will speak on "Observations upon the Transmission of Passive Anaphylactic Sensitivity in the Guinea-Pig." Other speakers will include:

Drs. Warren T. Vaughan and Clement J. Sullivan, Richmond, Va., Blood Surface Tension, Sedimentation Rate and Blood Pressure Responses Following the Ingestion of Allergenic Foods.

Drs. James A. Clark Jr. and Howard C. Leopold, Philadelphia, Prophylactic Treatment for Ragweed Hay Fever—A Statistical Study.

Dr. Joseph Harkavy, New York, Biopsy Studies of Skin Reactions to Tobacco in Vascular Disease.

Drs. Robert Chobot, New York, and George H. Hurwitz, Hartford, Conn., Limitations of Passive Transfer in Food Sensitive Children.

Dr. Abner N. Fuchs, New York, The Interruption of the Asthma Crisis by Tribromethanol (Avertin).

Dr. Alphonse R. Dochez, professor of medicine, Columbia University College of Physicians and Surgeons, New York, will address the annual dinner Saturday evening on "Studies of Upper Respiratory Tract Infection."

International Congress of Radiology.—Special courses in certain fields of radiology are to be offered during the fifth International Congress of Radiology, to be held in Chicago, September 13-17. Lectures will be given each morning of the congress for one hour. The lecturers and their subjects are:

Dr. Henri Coutard, Paris, Roentgen Therapy in Cancer.

Dr. George W. Holmes, Boston, Problems in Roentgenologic Diagnosis.

Dr. Hermann Holthusen, Hamburg, Germany, Fundamentals of Roentgen and Radium Therapy.

Dr. Byrl R. Kirklín, Rochester, Minn., Roentgen Diagnosis in Gastro-Enterology.

Dr. Edwin A. Merritt, Washington, D. C., Special Problems of Radiation Therapy Relating Especially to Treatment of Cancer of the Cervix and Breast.

Dr. Merrill C. Sosman, Boston, Diagnosis of Brain Lesions.

James L. Weatherwax, A.M., Philadelphia, Elementary Physics of Radiation.

Each of the courses will be given in English and will be open to between fifty and a hundred members, who will register for the specific course desired. Those who have already applied for membership in the congress may register by writing to the General Secretary, 2561 North Clark Street, Chicago; those who apply hereafter may register when they submit their applications for membership. It is desired that registration be made as soon as possible. There will be no extra charge for these courses. Complete papers to be presented at the meeting must be in the hands of the secretary by May 1 to allow time for translation and publication.

Government Services

Surgeon General Rossiter Reappointed

Rear Admiral Perceval S. Rossiter has been reappointed surgeon general of the U. S. Navy, following his completion of four years in the office. Dr. Rossiter will reach the statutory age for retirement Nov. 30, 1938. He graduated from the University of Maryland School of Medicine, Baltimore, in 1895 and has been associated with the service since 1903. Dr. Rossiter is now president of the Association of Military Surgeons of the United States and Canada.

Health of the Navy

Striking improvement in the health of the navy was recorded in the annual report of the Bureau of Medicine and Surgery, which covers important activities of the fiscal year 1935-1936 and detailed statistics of diseases and injuries for the calendar year 1935.

There were 51,746 admissions for all causes during 1935, a decrease of 13 per cent from 1934, attributed principally to a decrease in venereal diseases and a low incidence of communi-

cable diseases. Only two of the twenty-seven classes in the nomenclature of diseases and injuries showed percentage increases: all the rest showed decreases ranging from 0.45 for diseases of the mind to 75 per cent for communicable diseases transmissible by intestinal discharges.

Acute catarrhal fever, the navy's designation for the common cold, caused 21.25 per cent of the total admissions, first among single causes of admission. The rate was 8,299 per hundred thousand, compared with 9,974 in 1934. There were 200 admissions for influenza, compared with 432 in the previous year.

Venereal diseases occupied second place among all causes of morbidity and for the third consecutive year showed a decrease from the rate recorded the preceding year. These diseases were responsible for 16.48 per cent of all admissions. The rate was 74.7 per thousand, which was 17.26 per cent less than the rate for 1934 and 44.10 per cent less than the median rate for the five-year period 1930-1934. Gonococcal infection of the urethra caused 13.03 per cent of all admissions and syphilis 3.6 per cent.

There were 220 cases of diseases transmissible by insects and other arthropods, including 147 of malaria, sixty-three of dengue, six of typhus and four of filariasis. Among diseases transmissible by intestinal discharges were thirty cases of amebic dysentery, nine of paratyphoid, six of bacillary dysentery and five of typhoid.

Acute appendicitis caused 1,058 admissions to sick list, second in frequency among diseases of the digestive system, first in number of sick days per case. Acute gastro-enteritis was first in frequency, with 1,081 cases, but only 4.8 sick days per case. Diseases of the ear, nose and throat accounted for 6.9 per cent of the admissions; diseases of the eye, 1.3 per cent; diseases of the genito-urinary system (nonvenereal), 1.8 per cent; diseases of the motor system, 1.6 per cent.

There were 215 original admissions for diseases of the nervous system and 256 for diseases of the mind. In the latter group 251 persons were invalidated from the service. The largest number of the original admissions was for dementia praecox, fifty-seven.

Among 421 original admissions for diseases of the circulatory system, the largest number was 127 for arterial hypertension. There were 464 admissions for benign and malignant tumors, 292 of which were for cysts. Twelve were for carcinoma. There were 439 admissions for hernia.

The rate of admission to sick list for wounds and injuries in 1935 was 61.84 per thousand, somewhat lower than the rate for the preceding year. This cause was responsible for 13.58 per cent of all admissions. Motor vehicle accidents caused 848, or 12.1 per cent, of all accidental injuries and poisonings; 730 of them were received while the men were on leave or liberty. Athletics and recreative sports caused 1,431 admissions. There were no large disasters, but five accidents causing loss of life or injury were reported.

There were 320 deaths from all causes among the navy personnel of 114,188, giving a rate of 2.8 per thousand as compared with 2.73 for the preceding year and the median rate of 3.35 for the preceding five years. Wounds and injuries caused 163 deaths, diseases 149 and poisonings eight. Forty-three deaths were due to motor vehicle accidents and thirty-three to drowning. There were thirty-six suicides and nine homicides. Diseases of the circulatory system caused thirty-six deaths, pneumonia twenty-two, tuberculosis fourteen, cerebrospinal fever eight and appendicitis five. There were 1,397 persons invalidated from the service in 1935.

During the year the naval hospitals at Great Lakes, Ill., and Newport, R. I., were reopened and a general order was issued for creation of the Naval Medical Center at Washington, D. C. to consist of the Naval Hospital, the Naval Medical School and the Naval Dental School. During the year twenty-one naval medical officers completed a six months graduate course in naval medicine at the naval medical school and twenty-six took graduate courses in various universities. The report points out that there is an acute shortage of qualified flight surgeons for the navy. At the end of the fiscal year there were 806 members of the medical corps; twenty-five retired, seven resigned and two died. Fifteen officers were commissioned following an examination in May 1936.

CORRECTION

Primary Friedländer Pneumonia.—In the article by Dr. Saul Solomon in THE JOURNAL, March 20, the sentence beginning at the foot of page 937 and continuing on page 938 should read: "It is aerobic and facultative anaerobic and grows very readily on the ordinary laboratory mediums. In broth there is rapid and abundant growth with turbidity, slimy sediment and pellicle formation."

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 27, 1937.

Report of the Medical Research Council

The report of the Medical Research Council for 1935-1936, which has just been published, describes advances of great interest.

THE MECHANISM OF NERVE TRANSMISSION

The Nobel prize in medicine was awarded in 1936 jointly to Sir Henry Dale, director of the National Institute for Medical Research, and Prof. Otto Loewi of the University of Graz, for their work on the chemical mechanism of nerve transmission. Sir Henry Dale in 1914 became interested in the substance known as acetylcholine, which he found in some samples of ergot. Its potency in stimulating parasympathetic nerve endings and its rapid destruction by hydrolysis suggested the possibility of its physiologic importance. Between 1921 and 1926 a fundamental observation was made on the subject by Professor Loewi. He showed that stimulation of the vagus nerve to a frog's heart liberated a chemical substance, probably acetylcholine, which was itself capable of slowing the heart—the well known effect of vagus stimulation. It seemed as though the vagus acted on the heart by first liberating acetylcholine at the nerve endings. In 1929 an important advance was made when the late Dr. H. W. Dudley, collaborating with Dale, isolated acetylcholine as a normal constituent of an animal organ.

In recent years Dale and his colleagues have studied this problem with much ingenuity. They have shown not only that acetylcholine is the chemical transmitter of the vagus impulse to the heart but also that the same mechanism is responsible for all parasympathetic activities and also for some sympathetic, such as sweat secretion. Acetylcholine was also found to be the effective chemical substance responsible for all nerve transmission, parasympathetic or sympathetic, through ganglions of the autonomic system. In the past year Dale and his colleagues have shown an even wider action—that acetylcholine is the medium through which motor nerve impulses activate voluntary muscle. The results of this brilliant work are at present impossible to foresee. Already it has provided a scientific basis for the discovery by Walker of the action of prostigmin in alleviating myasthenia gravis, and there are indications that some compounds closely allied to acetylcholine, but of greater chemical stability, may have therapeutic importance.

THE VIRUS OF INFLUENZA

The investigations at the National Institute for Medical Research on influenza by Laidlaw, Andrewes, Wilson Smith and Stuart-Harris during the past year have made progress. This work originated in the discovery that an infection diagnosed as influenza in man could be transmitted to ferrets, in which it produced a characteristic feverish and catarrhal condition. This was transmissible to other ferrets, and recovered ferrets were immune for the time against further infection. Later it was found that mice could be infected from ferrets. The infective material from the human nasal mucosa, passed through a fine filter, was still infective when instilled into the ferret's nostril, indicating an ultramicroscopic virus. Here was the foundation of a new experimental method of investigating influenza, which already has yielded important results.

It has been shown that the virus originally isolated at the National Institute for Medical Research has a world-wide diffusion. Francis of the Rockefeller Institute, New York, has isolated strains of the virus from epidemics in Puerto Rico,

Philadelphia and Alaska, which were indistinguishable from those obtained by the British workers. This result has been confirmed by Dutch and Russian workers. A further step is the transmission of ferret influenza to man, which dispels the doubts of certain responsible investigators, especially in Germany, as to the connection between human influenza and the disease transmitted to ferrets. They suggested, among other alternatives, that the nasopharyngeal secretions of influenza patients might contain something which was capable of arousing virulence in a virus normally present, in innocuous form, in the nose and throat of the ferret. Soon after the virus was first obtained an attempt to transmit influenza to human volunteers failed, but during 1936 a positive result was obtained by accident. Virus originally obtained from a human case was passed through 196 ferrets in series and was used to infect a batch of ferrets. One of these sneezed violently while being examined by Dr. Stuart-Harris. After forty-five hours a sharp and typical attack of influenza began. Washings from his nasopharynx up to the fourth day were infective both to ferrets and to mice (the first instance in which the latter were directly infected from man). Fortunately a sample of the blood serum of Dr. Stuart-Harris, taken before the attack, was available. This contained no antibody for the virus of human influenza. But there were indications of such antibody early in the attack and by the eighth day, when the symptoms had completely subsided, it was strongly developed and remained so up to the thirty-first day, after which it slowly declined. The production from the virus of a vaccine that will immunize man against influenza is now being intensively studied at the institute.

THE PREVENTION AND TREATMENT OF PUERPERAL FEVER

Puerperal fever due to hemolytic streptococci has been responsible for the deaths annually in this country of 1,200 women in full vigor of life. Two papers published by Dr. Leonard Colebrooke and his colleagues at Queen Charlotte's Hospital, London, strongly suggest that red prontosil (4-sulfonamido-2-4-diaminoazobenzene) has a beneficial action on the infection, although more clinical and laboratory tests are necessary. An additional reason for delaying judgment is that even better results are promised with the colorless substance para-aminobenzene sulfonamide, which is the chemical mother substance of red prontosil. The following figures are instructive. During 1931-1935, 495 patients with puerperal sepsis were admitted to Queen Charlotte's Hospital, of whom 112 died, giving a mortality of 22.7 per cent. In part of 1936, sixty-four cases of puerperal sepsis were treated with red prontosil and "prontosil soluble," of which only three were fatal, a mortality of 4.7 per cent. Apart from the reduction of mortality Dr. Colebrooke has observed two changes for which these chemotherapeutic agents may be responsible. The first is a sudden reduction in the severity of the peritonitis in the cases so treated. As peritonitis has always been regarded as the most dangerous complication, the question arises of the action of the drug. The second change is that no patient has developed a palpable pelvic or abdominopelvic inflammatory mass or abscess after the beginning of the treatment, although this is one of the commonest complications of puerperal infection by hemolytic streptococci. One reason for caution in claiming success for the treatment has been advanced by Colebrooke. There are signs of a general diminution in the severity of puerperal sepsis in this country during the past five years. It is pointed out that we ought not to rely in the first place on curative drugs but on prevention, for which modern investigation suggests two lines. Access of pathogenic organisms to the birth canal must be excluded, especially streptococci associated with sore throat, whether of medical attendants, friends or the patients themselves. Prevention of their transport from the skin or other parts of the body is equally neces-

sary. Secondly, the diet of the pregnant woman should be such as to raise resistance to infection to the highest possible level, by ample consumption of milk, green vegetables and other protective foods.

The Civilian Anti-Gas School

Twenty-nine members of Parliament visited the Civilian Anti-Gas School in Gloucestershire, which is at present the only one of its kind in Great Britain. Another is to be opened soon in Yorkshire. Since the school was opened in April 1936 more than 800 persons, including police, physicians, members of the Red Cross Society and employees of local authorities, have received a fortnight's training in identifying and dealing with various poison gases and in decontamination of affected areas and clothing. They have returned to their own districts to pass on the instruction to others. It is estimated that 35,000 persons in various parts of the country are already proficient in the work of air raid precautions.

In the lecture room of the school the characteristics of the various gases and their effects were explained by Major F. W. Ollis, the chief instructor, with the aid of diagrams and lantern slides. The party was able to test for themselves the efficacy of the civilian respirators in an atmosphere charged with chlorine. Gum boots and blue glasses, for protection of the eyes against the glare of bursting incendiary bombs with a candle power of more than 50,000, were issued. On the outdoor range they were given further demonstrations of gases, high explosives and bombs containing a liquid simulating mustard gas, which gave off a pungent but harmless odor. A bomb was exploded, producing gas which spread over a large area, the cleansing and decontamination of which was demonstrated. This demonstration is only one more example of the thoroughness of the preparations that are being made against air attacks on this country.

PARIS

(From Our Regular Correspondent)

March 26, 1937.

A Difficult Social Insurance Problem

Every worker in France is obliged to be insured, according to the social insurance law, who annually earns up to 18,000 francs (\$900). This limit rises to 20,000 francs if the insured has one child less than 16 years of age, to 22,000 francs if he has two, and to 25,000 if he has three children less than 16 years old. An "indigent insured" is a worker who, although insured, has insufficient means to pay for medical care and is then placed on the relief roll of his "collectivity" (city, town). An insured worker ordinarily is obliged to pay all medical costs directly. He then receives illness certificates from the attending physician and the druggist and is reimbursed to the extent of 80 per cent of the outlay by the local caisse or office of the social insurance organization to which he belongs. In the case of an indigent insured, the local relief office pays in full the attending physician's, druggist's and other bills. Up to the present, this local relief bureau has been willing to assume only 20 per cent as its share of medical care of the indigent insured and has maintained that the social insurance local office or caisse should pay the remaining 80 per cent.

The class indigent insured (*assurés sociaux notoirement indigènes*) was created in the first social insurance act of 1928-1930 and included as such in the recently modified (October 1935) law. This category of indigent insured was defined as "ordinary social insured workers, whose resources are such as to need assistance in case of sickness." Such individuals are then (1) salaried workers obliged to be affiliated to the social insurance law, paying as such the same premiums as other insured workers, and (2) indigents entitled to free medical

care and listed as such on the rolls of their local relief bureau. All of the administrative difficulty concerning such indigent insured has been to know which of the two agencies (social insurance or local relief organizations) should be responsible for their medical care. Ought they to be treated as ordinary insured or as indigents entitled to free medical care? In the former case the attending physician could hold the insured responsible for services and was not obliged to sign the sickness certificate until being paid by the insured worker, who in turn was reimbursed by the social insurance bureau. In the case of the indigent insured, the attending physician was not allowed to present a bill for his services to the sick worker but filed a claim with the local relief bureau, which would pay the bill according to a fee table which differed considerably from that of the social insurance office. Now, in addition to this difference, the regulations of the local relief bureau vary also with respect to the number of visits allowed for a given illness, special care or radiography. The paragraph relating to this question of which organization (social insurance or relief) was responsible was not clear in either the original (1928) or the modified (1935) law.

As the result of recent decisions the indigent insured is considered an insured individual and as such is subject to all the obligations of the social insurance law but conserves all its privileges. He is hence considered as an ordinary insured worker, except that as an indigent he is not obliged to pay for medical care. The attending physician is paid directly by the local relief bureau, which in turn is reimbursed to the extent of 80 per cent of such fees by the local social insurance caisse or office. Under ordinary conditions, that is, in the case of nonindigent insured, this 80 per cent represents the sum reimbursed to the insured for medical outlays. The physician's fees will be based on the fee table of the social insurance organization and not on that of the local relief bureau. Thus the indigent insured is considered in the same category as the nonindigent insured, except that the fees for medical care are paid to the extent of 20 per cent by the local relief bureau and 80 per cent by the caisses.

Anuric Form of Hodgkin's Disease

Renal complications in Hodgkin's disease are rare; hence the report of a case of recurrent anuria as a complication as presented by Duvoir and associates at the Dec. 4, 1936, meeting of the Société médicale des hôpitaux is of considerable interest. A woman, aged 33, was admitted June 4 to the service of Duvoir because of an anuria of twenty-four hours' duration, preceded for several days by a mild rise of temperature, swelling of the inguinal lymph nodes and slight edema round the ankle joints, but no pain. There was an absence of a history of chronic nephritis and of the ingestion of any drug that could have been followed by anuria. Examination revealed the presence of a generalized adenopathy involving the regional superficial lymph nodes almost exclusively and those of the thorax or abdomen a little. The spleen was enlarged and firm. On questioning the patient it was learned that she had been given irradiation during the preceding three years for Hodgkin's disease. The hematologic formula was that of a chronic neutrophil polynucleosis. The blood urea content was 155 mg. per hundred cubic centimeters at the time of admission. Only 20 cc. of urine could be obtained on catheterization, and it showed a trace of albumin but no casts or light refracting bodies.

Based on the history of irradiation for Hodgkin's disease and the presence of generalized adenopathy, the anuria was believed to be related to the preexisting malignant lymphogranulomatosis. In spite of the administration of dextrose solutions, diuretics and high voltage roentgen therapy over the lumbar regions, uremic symptoms appeared four days after admission but receded after continuation of the irradiation and

reestablishment of the urinary secretion. The patient was discharged July 6 but returned August 3 because of a recurrence of the anuria of thirty-six hours' duration. The blood examination gave similar results to those on admission in June. Irradiation of the lumbar regions, without any other treatment, was followed after an interval of forty-eight hours by ample urinary secretion, but twenty-four hours later the anuria reappeared but lasted only a day, followed by a polyuria and apparent recovery.

This is the first report of a case of anuria during the course of a malignant lymphogranulomatosis, although transitory albuminuria and marked edema have been reported by Ziegler, Clement, Crouzon and Stoerk. The authors believed that there were two possible mechanisms to explain the anuria, either compression of the renal pedicles by enlarged lymph nodes or lymphogranulomatous infiltration of the renal parenchyma. Proof is still lacking as to which of these two to accept as an explanation of the anuria.

Chronic Nephritis in Children with Disturbances of Growth

Two interesting cases illustrating how chronic nephritis can retard development were reported at the January 8 meeting of the Société médicale des hôpitaux by Debré and his associates. The clinical symptoms polydipsia, polyuria, disturbance of glucide metabolism and arrest of development were all latent. The latency of the nephritis was so marked that over a period of several years frequent urinalyses failed to reveal the presence of albumin and the blood pressure was always found normal. The striking feature of the polydipsia was that it was the principal symptom and thus rendered difficult a differential diagnosis from diabetes insipidus in children. This was the diagnosis when the two patients were first seen. The disturbance in glucide metabolism in one of the children assumed the form of a slight intermittent glycosuria with a blood sugar quite similar to that found in diabetes mellitus. The retardation in growth was also very striking in both children. The chief and constant characteristics of certain forms of chronic nephritis in children are, therefore, dwarfism, polydipsia and polyuria. Other less constant features are disturbances in the metabolism of glucides and lipoids as well as late rachitis and at times calcinosis. The clinical picture as a whole represents some form of endocrine disturbance, pointing probably to the hypophyseal origin of the nephritis.

Second International Gastro-Enterologic Congress

The second International Gastro-Enterologic Congress will be held in Paris September 13-15 during the Exposition. The president is Prof. Pierre Duval. The two questions to be discussed are (1) the early diagnosis of gastric cancer (papers by Duval, Gosset, Carnot, Gutmann, Moutier, Garin, Labbé, Bertrand, Gatellier and Charrier of France and Konjetzny, Katsch, Sauerbruch, Buerger, Berg, Henning and Staemmler of Germany) and (2) acute and chronic obstruction of the small intestine (papers by Mogena of Spain, Wilkie of Great Britain, Bottin of Belgium, Krynski of Poland and Felsen of the United States). Only members of the International Society of Gastro-Enterology can take part in discussions.

The International Congress on Hepatic Insufficiency will follow on September 16 and will be held at Vichy. Professor Loeper of Paris is the president of this congress.

Laboratory Diagnosis of Undulant Fever

In the Dec. 5, 1936, issue of the *Progrès médicale* Lisbonne of Montpellier states that undulant fever has been found in sixty-four of the eighty-six departments of France. On account of the protean character of the symptoms, the diagnosis is not easy. Recognition of the causative organism by means of blood cultures is of great aid to the public health officer but

even in the most favorable cases requires from eight to ten days, at times even longer, and may prove to be negative in chronic cases. Nevertheless it should be employed as a routine measure at the onset of the disease. The most practical method of diagnosis is agglutination. It can be carried out in various dilutions. A total agglutination with a minimal dilution of 1 in 80 indicates a very active Brucella infection of recent origin. The intensity of the reaction increases progressively in proportion to that of the disease. Wright's serodiagnostic method is often doubtful and may be negative. The Burnet intradermal reaction is a very sensitive method but the long duration of the allergy throws no light on whether the infection is an acute one or is passive and extinct. All these methods are complementary and hence should be used in every case.

International Congress on Artificial Fever Therapy

The following French physicians will take part in the International Congress on Artificial Fever Therapy, which is to be held in New York March 29-31. Their subjects are pyrotherapy, by Professor Abrami; dosage of the temperature, by Prof. Charles Richet; physiology of artificial fever, by Professor Binet; experimental pathology, by Professors Levaditi and Bessemans; artificial fever therapy in psychiatry, by Professor Claude; in syphilis, by Professor Gougerot; in cardiology, by Professor Laubry; in surgery, by Professor Lardennois; in gynecology, by Dr. Dalsace; in ophthalmology, by Dr. Hambresin; in otorhinolaryngology, by Dr. Le Mée; in gonorrheal disorders, by Drs. Janet and Dreyfus.

Dr. Simon Flexner Elected Nonresident Member of Academy

One of the highest honors that can be bestowed on a research worker here is to be elected a French or foreign member of the Academy of Sciences of France. This recognition of the many contributions to microbiology made by Dr. Simon Flexner of the Rockefeller Institute of New York took the form of his election as a nonresident member of the Academy of Sciences at a recent meeting of that body.

BERLIN

(From Our Regular Correspondent)

March 22, 1937.

The Growth of the Sick Insurance Societies

Statistics were published recently on the activities of the sick insurance during the year 1935 (THE JOURNAL, June 27, 1936, p. 2250; Jan. 16, 1937, p. 218). The legally constituted sick insurance societies administered sick benefits in a total of 52,300,000 cases (including dental cases) in 1935. In 34,800,000 instances the patients were the members themselves, in 17,500,000 the patient's relatives. Contrasted with 1934, these figures represent increases of 2,800,000 cases and 2,600,000 cases respectively. For each hundred insured persons there were 185 cases involving members themselves (5.1 per cent more than in 1934) and in addition ninety-three cases involving relatives (an increase of 13.2 per cent). The increase in illness among members as against the previous year is manifestly attributable first of all to the reemployment of older persons and to the greater speeding up of industry. The number of cases involving workers' disabilities increased at a relatively greater rate as against 1934 than the rate of increase of the total number of insurance cases. This is in part due to the fact that working conditions have permanently improved, for in bad times the worker fears that he will not be reemployed if he claims disability, and in part to the influenza epidemic, which in 1935 was more widespread than that of 1934. In each 4.6 cases in which sick benefits were received, one was connected with loss of working capability (in 1934 the propor-

tion was one in each four). The average duration of disability was, however, shorter than in the previous year.

From all the sick insurance, 8,000,000 cases involving loss of working capability were reported in 1935 (against 6,800,000 cases in 1934) and 184,500,000 working days were lost through disability (against 167,400,000 days in 1934); in other words, the number of such cases increased by 18 per cent and the number of days by 10.2 per cent compared with the previous year. The average period of disabling illness declined from 24.6 days in 1934 to 23 days in 1935. For each hundred members there were 38.5 cases of disability and 883.5 days lost through disability, as against 33.9 cases and 833.3 days in 1934. The number of women who received sick benefits was considerably greater than the number of men. As in 1934, however, cases of worker's disability were less frequent among women than among men although, to be sure, the individual illnesses of women were of longer duration so that the number of days of disability, as in the previous year, was greater for the women than for the men. In 1936 the insurance societies were once more able to balance their budgets and in contrast with previous years closed their books without a deficit. The progressive increase in the number of persons employed has brought to the insurance societies in 1936 a further important increase in membership. The average membership (exclusive of the so-called supplementary societies) amounted in 1936 to 19,500,000 persons, or 700,000 more than in 1935 and 2,500,000 more than in 1933. There were a total of 21,400,000 persons insured by the societies; this includes 2,000,000 members of the supplementary societies.

More marked than the increased membership was the increase in income, chiefly because of the increased earnings of workers. The gross income in 1936 amounted to 1,317,000,000 marks,

Growth of Sick Insurance

	1885	1934
Number of insured.....	4,700,000	18,000,000
Insured per 100 of population	10 per cent	30.4 per cent
Average duration of loss of working capability	14.2 days	24.6 days
Sick days with loss of working capacity per 100 of insured	571	902
Disbursements	57,900,000 marks	1,141,000,000 marks
Amount expended for care of the sick (including medication) per 100 marks of gross income	40.1 marks	60.8 marks
Amount expended in cash benefits per 100 marks of gross income	49.8 marks	20.6 marks
Amount expended for administration per 100 marks of gross income	6.3 marks	9.5 marks

which was 7.7 per cent more than in 1935. The costs of the individual persons receiving sick benefits remained below those of 1935, apparently because the individual illnesses ran in general milder courses than in the previous year. Altogether 8,500,000 sick persons incapacitated for work were recorded by the sick insurance (not including the supplementary societies) in 1936; 40.9 per cent of the members were deprived of working capability by illness, against 39.9 per cent in 1935. For the same reasons, despite the greater number of claims, the total expenditures increased only proportionately, that is, by 1,308,000 marks (2 per cent). Reckoned according to individual members, the gross income increased by 3.9 per cent and the contributions paid in by 6 per cent, whereas the benefits declined from 68.28 to 61.17 marks. In spite of a heavy financial burden imposed by the influenza epidemic in the last two months of 1936, the sick insurance societies (on the whole) closed their records for that year with a small surplus of about 9,000,000 marks.

Interesting too is an observation made by Dr. Grünwald, director of sick insurance affairs for the present national ministry of labor. Two concepts, he says, have from year to year become more deeply rooted in the insurance societies: the greater importance of the prophylactic as opposed to the purely therapeutic approach to disease, and the need for a fundamental eradication of incipient disease. It used to be that these principles, partially as a consequence of the poor financial condition of many societies, did not receive sufficient practical application. As it has come to be recognized that "debilitating diseases," namely, those which cause premature depletion of the energies, constitute the most serious menace to the worker's health, the demand for early treatment has increased and it becomes perceptible that from the standpoint of sick insurance the allowance for early treatment will prove less expensive in the long run than the granting of compensation solely for legally prescribed disease conditions in the individual case.

A few comparative figures that were published a short time ago on the occasion of the fifty-year jubilee of the sick insurance are reproduced in the accompanying table to illustrate the growth of this field.

RIO DE JANEIRO

(From Our Regular Correspondent)

Feb. 15, 1937.

Treatment of Cranial Trauma

Prof. Enjolras Vampré, in a lecture recently delivered to the Sociedade de Medicina e Chirurgia of São Paulo, reviewed the diagnosis and treatment of cranial trauma. When no history is obtainable, as when a patient arrives in an ambulance, the differential diagnosis is made between cranial trauma and Bright's disease, diabetes, hemorrhages, softening of the brain, convulsions, epilepsy, alcoholic coma and lethargic encephalitis. Careful examination and consideration should be given to the pulse, the arterial pressure, respiration, temperature and the reflexes. The condition of the pupils and of the fundus of the eyes is of importance. The speaker discussed the diagnostic value of ecchymoses, hemorrhages of the nose, mouth and ear, x-ray studies of the head, the integrity of the cerebral substance or its coming through a fracture, and the presence of traumatic meningo-encephalitis. Functional disturbances after trauma, showing alterations in the brain, are of more clinical importance than cranial fracture. Cranial trauma disturbs the vasomotor functions of the brain with consequent alterations of the cerebrospinal fluid and of the cerebral arteries and veins. The treatment of concussion is in accordance with the type (congestive, edematous and hypertrophic) of concussion. Immediate manometric determinations of the pressure of the cerebrospinal fluid, especially for diagnosis of suboccipital functions, are of value as, according to Leriche, there may be hypotension or hypertension of the fluid after trauma.

Ventriculography in the Localization of Intracranial Tumors

Dr. Carlos Gama recently lectured before the Sociedade de Medicina e Chirurgia of São Paulo. He reviewed the techniques of ventriculography, especially Dandy's technic for puncture of the posterior horns of the lateral ventricle. From the point of view of ventriculography, the lateral ventricles can be considered as dilated spaces, in comparison to the size of the other ventricles of the brain, which are of an irregular narrow shape, except in hydrocephalus. Certain contrast substances (such as thorium dioxide sol), which are soluble in the cerebrospinal fluid, are inconvenient in ventriculography and their use should be discontinued.

ITALY

(From Our Regular Correspondent)

Feb. 20, 1937.

National Harm from Venereal Diseases

The problem of the harm caused in Italy from syphilis and gonorrhea, from demographic, social and economic angles, was discussed at the National Congress of Dermatology and Syphilography, which was recently held at Rome. Professors De Amicis of Naples and Serra and Revelloni of Cagliari were speakers. The most important conclusions drawn were as follows: The actual number of syphilitic patients in Italy is about 750,000. Two thirds of this number are men. The annual mortality from acquired syphilis is about 30,000 deaths. That from congenital syphilis (prenatal and postnatal deaths) is about 30,000. The number of mental defectives from congenital syphilis is about 10,000. There is an annual loss of about 50,000 births due to lack of virility of men or to sterility of women from gonorrhea. In all, about 120,000 lives are lost. The social harm and economic expenses may be evaluated in an annual total loss of about 500,000,000 lire (\$25,000,000) plus other expenses in controlling diseases that develop or are aggravated by syphilis or gonorrhea. The Italian government spends about 7,000,000 lire (\$350,000) a year in preventing the development of venereal diseases.

Meeting of Obstetric Society

The annual meeting of the Società di Ostetricia e Ginecologia of Rome was recently held at Milan and presided over by Professor Alfieri, head of the clinic of the Milan University. Professor Delle Piane of Novara presented the first topic, "Cancer of the Body of the Uterus." The frequency of the latter, in comparison with other gynecologic diseases, is 0.5 per thousand, whereas in comparison with cancer of the genitalia it is 10 per cent. The average age of development of the disease is between 48 and 50 years. In 65 per cent of the cases it develops after the menopause. Benign adenoma is the most important precancerous tumor, which may become cancerous or occur in association with cancer. The mechanism of propagation of cancer of the body to the uterus and outside the structure is different from that of cancer of the neck of the uterus. The external orifice of the uterus presents an obstacle to the superficial propagation of cancer of the body, which slowly spreads to deeper layers in the uterus and outside the structure. Sometimes it extends to retrograde structures by means of metastases through the lymph vessels and the veins. The modifications of different segments of the uterus, hemorrhages and pain are important symptoms. Hysterometry, hysterography, digital examination and especially biopsy are of diagnostic value. It is advisable to apply biopsy by aspiration for early diagnosis, followed immediately by operation or physical treatment. Cancer of the body of the uterus at the time when a clinical diagnosis is made is operable in from 60 to 100 per cent of the cases. The high percentage of operability depends on the slow evolution of this type of cancer, in which the tumor is in the uterus for a long time. The treatment is excision of the uterus and the adnexa.

In the discussion, Professor Artom of Rome called the attention of general physicians to the diagnostic importance of cancer of the body of the uterus and to the need of examining the entire structure and not merely the neck. Professor Zancola of Palermo reported satisfactory results from the roentgen treatment in nineteen of twenty-three patients who had cancer of the body of the uterus. Professor Maurizio of Padua reported results from the roentgen treatment in about 405 cases of cancer of the uterus in which treatment was administered at the clinic of the University of Padua from 1928 up to the present time. There were no deaths in the group of forty-eight patients who suffered from cancer of the body of the uterus. Professor Momigliano of Rome said that diabetic

patients who suffer from cancer of the body of the uterus have to be given insulin before irradiation because radium and the x-rays increase glycemia. Professor Alfieri of Milan is opposed to irradiation. He advises total hysterectomy, except in cases in which contraindications exist. In cases of cancer of the body that were treated by the speaker with liberal doses of radium (70 millicuries) the hemorrhage was controlled, but neoplastic tissue was found in the uterus several months later.

The second topic was glycosuria and diabetes with relation to maternity. Professor Bompiani of Palermo was the speaker. Glycosuria in the course of pregnancy may originate in a lowering of the renal threshold, in a paradiabetic condition in association with or independent of lowering of the renal threshold, and in diabetes. Sometimes diabetes is latent and shows itself by a condition of relative insufficiency of the insular system which is due to endocrine changes induced by pregnancy. In the origin and evolution of glycosuria the functional activity of the anterior lobe of the hypophysis is of the utmost importance because of the relations of the lobe to the metabolism of pregnant women and the rôle of functional hypophyseal disturbances in the development of pathologic conditions in pregnancy. The speaker discussed the advisability of permitting conception or inducing sterility in diabetic women, the influence of diabetes on pregnancy, labor, the puerperium and lactation, and the influence of maternity, the evolution and the complications of diabetes.

Personal Items

Prof. Luigi Auricchio has been appointed professor in the pediatric clinic of the University of Naples to succeed Prof. Rocco Jemma, who resigned because he reached the age limit for teaching (70 years). Professor Auricchio has reported results of clinical work on several pathologic conditions, especially the pathogenic and diagnostic aspects. His most important contributions are on hemorrhagic diatheses, eosinophilia, varicella, vaccination and serodiagnosis of infantile leishmaniasis.

Course on Industrial Medicine

A course on specialization in industrial medicine will be given at the Ospedali riuniti di Pistoia. The motion for establishing the course came from the Accademia Medica Filippo Pacini. The course will cover industrial medicine from the point of view of Italian industrial laws, both those now in force and those which will come into force April 1.

Serotherapy Institute in Addis Ababa

A branch of the Milan serotherapy institute will be open at Addis Ababa in the near future. The construction of the building was recently begun.

Marriages

CLIFFORD MCKINLEY CRESWELL, New York, to Miss Dorothy Summer Beaman of Providence, R. I., Dec. 19, 1936.

B. KIRTLEY AMOS, Princeton, Ky., to Miss Delia Elizabeth Godley in Washington, N. C., March 17.

ROMUS ARNOLD, Joliet, Ill., to Mrs. John Edgar Brock of Evanston in Lansing, Mich., in March.

CHALMERS E. CORNELIUS, Jenkintown, Pa., to Miss Elizabeth Oelbermann of Philadelphia, April 3.

JOSEPH BUCKNER KILLEBREW to Miss Katherine Bessent, both of Chattanooga, Tenn., January 10.

LESLIE D. DARNER to Miss Lucie Demery, both of Granite City, Ill., in Palmer, March 28.

JAMES BELL CAROTHERS to Mrs. Jane Brown Daniel, both of Atlanta, Ga., January 9.

FLOYD M. BURGESSON to Miss Helen Anderson, both of Atlanta, Ga., February 18.

ROBERT D. CRAWFORD, Dothan, Ala., to Miss Tommie Cotter in Ozark, January 12.

Deaths

Thomas J. Gallaher * Denver; University of Pennsylvania Department of Medicine, Philadelphia, 1889; secretary of the Section on Laryngology and Otology of the American Medical Association, 1894-1895; professor of laryngology and rhinology at the University of Denver Medical Department, 1897-1902; member of the American Academy of Ophthalmology and Otolaryngology and the American Laryngological, Rhinological and Otological Society; fellow of the American College of Surgeons; on the staffs of St. Luke's and Children's hospitals; for two years member of the medical advisory board of the Presbyterian Hospital; aged 69; died, February 5, of angina pectoris.

Philip Hammond, Boston; Harvard University Medical School, Boston, 1894; member of the Massachusetts Medical Society, the American Otological Society and the New England Otological and Laryngological Society; for many years instructor in otology at his alma mater; consulting aurist for the Massachusetts General Hospital, the Massachusetts Eye and Ear Infirmary, the Melrose (Mass.) Hospital, Winchester (Mass.) Hospital, the Anna Jacques Hospital, Newburyport, and the Hale Hospital, Haverhill; aged 65; died, February 7, of Hodgkin's disease.

Alfred Schalek, Omaha; German University of Prague, Austria, 1890; professor emeritus of dermatology and syphilology, University of Nebraska College of Medicine; formerly assistant professor of skin and venereal diseases at Rush Medical College, Chicago; member of the American Dermatological Association; past president of the Omaha Dermatological Society; member of the staffs of the Methodist, Immanuel and Swedish hospitals; author of "Diseases of the Skin" and "Fundamentals of Dermatology"; aged 71; died, February 9, of pneumonia.

Edwin Elgin Evans * Columbia, Mo.; University of Missouri School of Medicine, Columbia, 1898; member of the American Psychiatric Association; at various times assistant physician, State Hospital, Fulton, State Hospital, St. Joseph, superintendent of the East Louisiana State Hospital, Jackson; assistant superintendent and managing officer of the Huntington (W. Va.) State Hospital; aged 68; died, February 8, in St. Louis, of coronary thrombosis.

James Harrison Hodges, Gainesville, Fla.; College of Physicians and Surgeons, Baltimore, 1888; member and past president of the Florida Medical Association; formerly member of the state board of medical examiners; at one time superintendent of the Florida Farm Colony for Epileptic and Feeble-minded; served as a physician for the Seaboard Air Line Railway and the Atlantic Coast Line Railroad for many years; aged 70; died, February 3.

William Edgar Holland, Fayetteville, Pa.; Medical-Chirurgical College of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; past president of the Franklin County Medical Society; on the staff of the Chambersburg (Pa.) Hospital; served as a school director in Greene Township and for a number of years was president of the board; aged 66; died, February 3, of chronic nephritis and uremia.

Henry Irving Cozad * Cuyahoga Falls, Ohio; Western Reserve University Medical Department, Cleveland, 1898; member of the American Psychiatric Association; formerly chairman of the county and city board of health; medical director and superintendent of the Fair Oaks Villa; aged 64; neurologist to the Akron City Hospital, where he died, February 1, of pneumonia.

Felix William Garcia, St. Louis; Washington University School of Medicine, St. Louis, 1893; at one time lecturer of anatomy at the Marion-Sims College of Medicine; for many years physician for the Home for the Aged of the Little Sisters of the Poor; aged 65; died, February 11, in the Barnes Hospital, of carcinoma of the larynx.

Herman Louis Fuerstman, Newark, N. J.; Long Island College Hospital, Brooklyn, 1910; member of the Medical Society of New Jersey; for many years a member of the board of education; on the staff of the Beth Israel Hospital; medical director of the Essex Private Hospital; aged 52; died, February 12, of coronary thrombosis.

Elphege A. René De Cotret, Montreal, Que., Canada; M.B., Laval University Medical Faculty, Montreal, in 1886, and M.D. in 1888; formerly professor of obstetrics and clinical obstetrics at the University of Montreal Faculty of Medicine; at one time one of the directors of L'Hôpital Notre-Dame; aged 75; died, February 7.

Fred Henry Shorts * Kent City, Mich.; Saginaw Valley (Mich.) Medical College, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; for many years member of the school board; veteran of the Spanish-American and World wars; aged 61; died, February 12.

Halbert Lee Waterman, Brattleboro, Vt.; University of the City of New York Medical Department, 1892; formerly member of the state board of medical registration; at one time health officer of Brattleboro; on the staff of the Brattleboro Memorial Hospital; aged 68; died, February 20, of lobar pneumonia.

Ezra Esher Fry * Bonners Ferry, Idaho; University of Toronto (Ont.) Faculty of Medicine, 1902; for many years county physician; member of the board of village trustees and school board; president of the bank; founder of the Bonners Ferry Hospital; aged 61; died, February 6, of coronary thrombosis.

William Marvin Johnson * Sparta, Tenn.; University of the South Medical Department, Sewanee, 1900; past president of the White County Medical Society; served during the World War; formerly county health officer, and member of the school board; aged 60; died, February 2, of influenza and pneumonia.

Albert Harold Linaweaver, Findlay, Ohio; College of Physicians and Surgeons of Chicago, 1896; member of the Ohio State Medical Association; past president of the Hancock County Medical Society; on the staff of the Home and Hospital; aged 80; died, February 2, of heart disease.

Theodor L. E. Arnold, Dallas, Texas; Universität Bern Medizinische Fakultät, Switzerland, 1875; Universität Zürich Medizinische Fakultät, Switzerland, 1886; member of the State Medical Association of Texas; aged 88; died, February 23, of arteriosclerosis, myocarditis and coronary sclerosis.

Helene Emeth Schutz * Ann Arbor, Mich.; University of California Medical School, San Francisco, 1927; instructor in hygiene and public health and physician in the health service, University of Michigan; aged 35; hanged herself, February 20, while a patient at a hospital in New York.

William Hirsch, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; member of the Medical Society of the State of New York; formerly consulting physician at the Manhattan State Hospital; aged 78; died, February 14.

Sylvester A. Hawes, Greenville, Ohio; Medical College of Ohio, Cincinnati, 1884; on the staff of the Greenville Hospital; for many years pension examiner in Darke County; physician and surgeon for the New York Central and Baltimore and Ohio railroads; aged 76; died, February 20.

Ernest E. Hancock * Battle Creek, Mich.; Hospital College of Medicine, Louisville, Ky., 1901; aged 62; died, February 13, in the Nichols Memorial Hospital, as the result of injuries received when the automobile in which he was driving was struck by a train.

John William Ebert * Towson, Md.; University of Maryland School of Medicine, Baltimore, 1912; on the staff of St. Joseph's Hospital, Baltimore; aged 49; was found dead, February 2, at his home in West Palm Beach, Fla., of coronary thrombosis.

William Morton De Bord, Ashland, Ky.; University of Louisville Medical Department, 1907; member of the Kentucky State Medical Association; veteran of the Spanish-American War; formerly county health officer; aged 63; died, February 17.

Oliver Perry Faires, Greenfield, Mo.; Kansas City Medical College, 1905; for many years Jackson County jail physician; aged 71; formerly on the staff of the Trinity Lutheran Hospital, Kansas City, where he died, February 9, of pneumonia.

Ernest Perry Clement, Elyria, Ohio; Starling Medical College, Columbus, 1898; member of the Ohio State Medical Association; past president of the Lorain County Medical Society; aged 62; died, February 2, of cardiorenal vascular disease.

William Rendell Williams, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1902; professor of clinical medicine at his alma mater; aged 63; died, March 5, in the Hahnemann Hospital, of carcinoma of the bladder.

Stephen Anderson Hall, Advance, Ind.; Kentucky School of Medicine, Louisville, 1894; aged 72; died, February 20, in the St. Mary and Elizabeth Hospital, Louisville, Ky., of injuries received when he was struck by an automobile.

William Martin Dummer, Fairfax, Minn.; Northwestern University Medical School, Chicago, 1918; member of the

Minnesota State Medical Association; aged 50; died, February 1, in Rochester, of hypertension and renal insufficiency.

Ernest G. Epler, Fort Smith, Ark.; Chicago Medical College, 1883; member of the Arkansas Medical Society; one of the founders and on the staff of Sparks' Memorial Hospital; aged 76; died, February 22, of carcinoma of the liver.

Adolph Lincoln Marks, St. Louis; St. Louis College of Physicians and Surgeons, 1897; also a dentist; veteran of the Spanish-American War; aged 75; died, February 3, in the Lutheran Hospital of cerebral hemorrhage.

George M. Bradish, Grand Rapids, Mich.; Eclectic Medical Institute, Cincinnati, 1879; for many years county coroner and township health officer; aged 82; died, February 22, of cerebral hemorrhage and chronic nephritis.

Frank Henry Luce, Seattle; University of the City of New York Medical Department, 1882; formerly member of the state legislature and lieutenant governor; aged 77; died, February 1, of coronary thrombosis.

John Roscoe Ash, Brighton, Ill.; Beaumont Hospital Medical College, St. Louis, 1889; member of the Illinois State Medical Society; aged 69; died, March 19, in a hospital at Alton, of pneumonia.

Merritt Fillmore Lee, Middle Grove, N. Y.; Eclectic Medical College of the City of New York, 1883; also a minister; aged 84; died, February 8, of arteriosclerotic heart disease and cardiac embolus.

Robert F. Shinsky Ⓢ Detroit; Detroit College of Medicine and Surgery, 1920; aged 49; for many years on the staff of St. Mary's Hospital, where he died, February 2, of a staphylococcal infection.

Frank Louis Darrow, Columbus Junction, Iowa; Jefferson Medical College of Philadelphia, 1882; Bellevue Hospital Medical College, New York, 1885; aged 80; died, February 13, of arteriosclerosis.

William Byrd Jackson Ⓢ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1928; aged 32; on the staff of the Mercy Hospital, where he died, February 11, of pneumonia.

Roscoe Felix Johnson, Columbus, Ga.; Baylor University College of Medicine, Dallas, Texas, 1914; served during the World War; aged 44; died suddenly, January 31, of heart disease.

William James Richardson, Greensboro, N. C.; Jefferson Medical College of Philadelphia, 1886; aged 73; died, February 17, in the Wesley Long Hospital, of chronic nephritis and myocarditis.

Harriet Louise Hawkins, Birmingham, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; aged 75; died, February 21, of arteriosclerosis and myocarditis.

August Anderson Ⓢ Chicago; Hahnemann Medical College and Hospital, Chicago, 1916; veteran of the Spanish-American and World wars; aged 55; died, March 14, of organic heart disease.

Charles Wilson Hughes, Wilmington, Del.; Pulte Medical College, Cincinnati, 1893; on the staff of the Homeopathic Hospital; aged 75; died, February 11, of acute pulmonary edema.

Oscar Landauer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1903; aged 53; died, February 17, of illuminating gas poisoning, self administered.

Charles L. Jones, Noble, Ill.; Barnes Medical College, St. Louis, 1903; aged 62; died, February 2, at the Olney (Ill.) Sanitarium, of cardiovascular renal disease.

Harry Alonzo Huntoon, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1908; aged 56; died, February 12, of pneumonia.

Douglas Duperier, Port Arthur, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1892; aged 72; died, February 9, of chronic myocarditis.

Sullivan Howard, Elk Creek, Neb.; University of Denver Medical Department, 1892; aged 71; died, February 2, in St. Petersburg, Fla., of cerebral hemorrhage.

William M. Cory, Waterville, Minn. (licensed in Minnesota under the Act of 1887); aged 78; died, February 5, of influenza, acute nephritis and uremia.

Edwin William Rose, Gladstone, Manit., Canada; Manitoba Medical College, Winnipeg, 1900; aged 59; died, February 23, of lobar pneumonia.

Correspondence

POSTGRADUATE MEDICAL EDUCATION IN VIENNA

To the Editor:—Notwithstanding the ravages of the World War and of the chaotic period that followed it, Vienna nevertheless succeeded in retaining her popularity among American physicians as a first class postgraduate medical center. During the past summer, for instance, there were approximately seventy-five English-speaking physicians constantly in attendance, and the organization which served them, the American Medical Association of Vienna (in no way connected with our own American Medical Association) boasted a life membership exceeding eight thousand, accumulated during its thirty-two years of existence.

The most plausible explanation for this enduring popularity is unquestionably the "hands-off" policy of the Austrian government, which until recently at least has been not to interfere with the intellectual and scientific pursuits of its universities. Unfortunately, however, sufficient evidence exists to indicate a gradual deviation of late from this liberal policy. Manifestations of political regimentation, such as the removal of men, even though highly competent, from university and hospital positions solely because of political or racial nonconformities, were quite obvious to Americans visiting there several months ago, and particularly to those of us who had our instructors picked before reaching Vienna. For instance, of the four names listed in my own "prospectus" I discovered on arrival that one had already been deprived of his teaching facilities and that another was expecting fearfully a similar fate in the near future. His fears have since then materialized into a tragic reality.

These facts argue for a preliminary investigation on the part of American physicians contemplating postgraduate study in Vienna. The important question to settle of course is whether or not the instructors concerned are still in their favorable teaching positions. The continued appearance of their names in the printed catalogues does not always tell the whole story. A clinician may still be listed as "dozent," for instance, and yet not have an adequate amount of clinical teaching material at his disposal.

Letters of inquiry directly to the instructors under consideration should help to do away with many of these uncertainties and should tend to obviate much of the disappointment and confusion that might otherwise result.

MAX MILLMAN, M.D., Springfield, Mass.

"THE THERAPEUTICS OF PROSTIGMIN"

To the Editor:—In the article "The Therapeutics of Prostigmin" by Drs. Goodman and Bruckner (*THE JOURNAL*, March 20) there is much cause to reflect. The patient was given 45 mg. of prostigmin orally at a single dose. This is considerably larger than the small single oral doses usually given to patients suffering from myasthenia gravis. After such a dose the subject exhibited characteristic signs of overdose (diarrhea, miosis, sweating, and so on) and there is a reasonable presumption that the patient was more than usually susceptible to the drug. The reaction described, while unpleasant, cannot be regarded as being dangerous.

I have treated six patients suffering from myasthenia gravis with aminoacetic acid, ephedrine, beta-aminopropylbenzene and other methods. In all but one case the best therapeutic effect was obtained with prostigmin given orally in amounts averaging from 60 to 120 mg. daily in single doses of 15 mg. at intervals. I have never seen any evidence of severe abdominal pain, diarrhea or other untoward symptoms in these patients. Three of the six would be bedridden were it not for the use

TREATMENT OF SYPHILIS

To the Editor:—The paper by Stokes on "Clinical Problems in Syphilis Control Today" [THE JOURNAL, March 6] is quite the most useful résumé I have ever read—clear, coherent, easily expressed. I am teaching pharmacology to fourth year medical students at Queen's University, and we have recently been studying our means of attack on this problem. The only thing I do not find sufficiently clear is the statement of the distribu-

The treatment schedule corresponding to the sloganized "30-60-0-3" is the American continuous alternating system of treatment described in the report of the Commission of Experts on Syphilis of the League of Nations Health Organization.

The week-by-week tabular presentation of this standard course of treatment is herewith reproduced.

Plan of Alternating Continuous Treatment for Early Syphilis *

Time	Arsphenamine, Gm.	Interim Treatment	Serologic Test	Comment	
Day					
1	0.3-0.6	.....	1	Arsphenamine dosage for first 3 injections at level of 0.1 Gm. for each 25 pounds (11.3 Kg.) of body weight. Average subsequent dosage, 0.4 Gm. men, 0.3 Gm. women, the fourth and subsequent injections in the first course at weekly intervals. In average patient, all lesions heal rapidly and blood serologic reaction becomes negative during first course. If arsphenamine cannot be used, substitute 8 to 10 doses of 0.3 Gm. of silver arsphenamine or 10 to 12 doses of neoarsphenamine (0.45-0.6 Gm. maximum for women and 0.6-0.75 Gm. for men). This applies also to subsequent courses
5	0.3-0.6				
10	0.3-0.6				
Week					
3	0.4				
4	0.4				
5	0.4				
6	0.4				
7	0.4	.....	1	If mercury is used, note overlap of 1 week at end of first and start of second arsphenamine courses. At this point a few days without treatment may be dangerous. (Neurorelapse)
8	...	Bismuth compounds, 4 doses			
9		0.2 Gm., and potassium iodide			
10		or mercurial ointment and			
11		potassium iodide			
12	0.4	.....	1	Arsphenamine starts, bismuth compounds stop
13	0.4	.....	1	Watch for provocative serologic reaction after first dose of arsphenamine
14	0.4	.....	..	Try to prevent short lapses in treatment, especially at this early stage
15	0.4				
16	0.4				
17	0.4	.....	1	
18-23	...	Bismuth compounds, 6 doses, or mercurial ointment and potassium iodide	..	Bismuth compounds are better than mercury; use if possible. Examine cerebrospinal fluid if patient's cooperation can be secured at about this time. If found to be abnormal, continue or intensify treatment as required, reexamining fluid within six months	
21	0.4				
23	0.4				
26	0.4				
27	0.4				
28	0.4				
29	0.4				
30-37	...	Bismuth compounds, 8 doses, or mercury and potassium iodide			
38	0.4	.....	1	
39	0.4				
40	0.4				
41	0.4				
42	0.4		1		
43	0.4	.....	1	
44-53	...	Bismuth compounds, 10 doses, or mercurial ointment and potassium iodide	..	Note that bismuth or mercury courses are gradually getting longer; 4, 6, 8 and now 10 weeks	
54	0.4	.....	1	
55	0.4	.....	..
56	0.4				
57	0.4				
58	0.4				
59	0.4	.....	1	
60-69	...	Bismuth compounds, 10 doses, or mercurial ointment and potassium iodide	..	It is safer to finish treatment with bismuth or mercury compounds rather than with arsphenamine	
70-122	Probation. No treatment.....		6-12		
123	Complete physical and neurologic examination, lumbar puncture and, if possible, fluoroscopic examination of heart and great vessels				

* Table 2 in "League of Nations Investigation and Report on Treatment of Early Syphilis," by the Committee of Experts on Syphilis and Cognate Subjects, Zurich, Nov. 21-23, 1934, published in THE JOURNAL, April 13, 1935, page 1329.

tion of the drug courses—five injections of the arsenical and ten of bismuth subsalicylate over the sixty-five weeks. How are the thirty injections of the arsenical related to the sixty of bismuth subsalicylate as to time interval and rotation relationship (p. 782, line 17 and following)?

THOMAS GIBSON, M.D., Kingston, Ont.

ANSWER.—The United States Public Health Service Division of Venereal Diseases publishes the proceedings of the Conference on Venereal Disease Control held in Washington, December 1936, which includes the series here mentioned, as a separate publication.

EFFECTS OF ENDOCRINE MATERIALS ON GROWTH

To the Editor:—I have a patient, 15 years of age, nearly 6 feet (183 cm.) tall, and weighing only 125 pounds (56.7 Kg.). His bones are small and long; the penis and testicles also are small. I want to know what preparation of the glands would be best to give him to cause him to develop more normally.

A. S. EPPERSON, M.D., Cameron, Texas.

ANSWER.—The information given is inadequate to permit definite advice, since one cannot be certain from this description which glands are dysfunctioning and to what extent. Further

information regarding the endocrine status, especially of the thyroid, pituitary and gonads, is essential before embarking on therapy, and to this end it is advisable to determine the basal metabolic rate, sugar tolerance and, if practicable, hormone extraction studies for gonadal and pituitary function.

The size of the testicles occasionally increases following intramuscular injection two or three times a week of the gonadotropic principle from pregnancy urine in doses of from 100 to 200 rat units. This may be continued for two or three months. Development of the external genitals sometimes follows the administration of the recently developed synthetic testicular hormones. If the basal metabolism is depressed a thyroid deficiency is indicated, and thyroid in appropriate doses should be given.

Since the patient is evidently markedly asthenic and underweight, a diet regimen planned to increase his weight and nutrition is advisable.

For a more complete report, more detailed diagnostic study, including anthropometric measurements and bone-age pictures, is needed. Many of these cases develop spontaneously at the age of puberty and need no treatment at all.

TRAUMA AND GASTRIC ULCER

To the Editor:—A man, aged 32, while working as a warp hanger in a silk weaving mill Jan. 7, 1936, was struck with considerable force in the center of the epigastrium by the end of a shuttle, which flew off one of the looms. He became weak and faint and, in a few minutes, nauseated. About five minutes after the accident he vomited what remained of his breakfast, which he had eaten two hours before. About half an hour later he again became nauseated and vomited about half a pint of (apparently) pure blood. He was then taken to a hospital, where he remained thirteen days. The vomiting of blood continued for three days, at which time he began having cramping, abdominal pains. Since that time he has had attacks of cramping, abdominal pains lasting from three to eight hours at intervals of about one week and has lost about 15 pounds (7 Kg.). He has had no appetite. The attacks of cramping pain have been rather severe but in no case, except in the first attack, has he been given narcotics for relief. He came under my care recently but states that the only medication by mouth he has received from other physicians under whose care he has been is an alkaline powder called papsomax. The attacks of pain apparently have no connection with the ingestion of food. After finding a positive reaction for sugar in the urine, I had the blood sugar tested, which showed 143 mg. per hundred cubic centimeters of blood. The Kahn test is negative. The x-ray examination of the gastro-intestinal tract showed a punched out ulcer on the greater curvature of the stomach about a third of the way between the esophagus and the pylorus. Pressure over this point under the fluoroscope caused much pain; it was the most tender spot of the entire stomach and duodenal area, although there is tenderness over the entire stomach and duodenal area. Under the fluoroscope he pointed to a spot about half an inch above the pylorus as the point where the shuttle struck him. The patient states that he had never had any stomach trouble or abdominal complaints before the injury. His white blood cell count is 12,700, red blood cell 5,750,000, hemoglobin 90 per cent. The urinalysis showed, besides the positive Fehling test, one plus albumin, occasional pus cells and an amorphous phosphate sediment. He has never had any operations. Can there be any connection between this man's injury and his present condition? What further can be done to clear up this case and what treatment do you advise?

M.D., North Carolina.

ANSWER.—One may properly conclude that trauma was the inciting or actual causative factor to explain the presence of the gastric ulcer and the presence of disturbed carbohydrate metabolism. The latter condition is actually a form of diabetes that may be latent or subclinical or could be the direct result of pancreatic injury. The factor of trauma in the genesis of acute and chronic peptic ulcer has been a subject of contention for many years. Recent contributions to the American literature on the subject have been made by Crohn and Gerendasy, Eusterman and Mayo, and Irving Gray. Judging from the cases reported, such ulcers are more likely to occur in the stomach than in the duodenum, as a portion of the stomach underlies the exposed epigastric angle of the abdominal wall. The duodenum lies deeper and is more protected.

The nondescript nature of the abdominal pains makes it difficult to determine their origin; they are certainly not characteristic of ulcer. However, the traumatic, possibly penetrating, nature of the lesion, and the probability of an associated pancreatitis, could explain the atypical symptom complex. Lesions on the greater curvature, posterior wall or prepyloric area are often carcinomatous, but under the circumstances one would greatly discredit that possibility. It seems essential that the patient be hospitalized for a period of a month on adequate ulcer management, with a continuation of the treatment in ambulant fashion for six or eight months thereafter at least. If satisfactory improvement from both a clinical and a roentgenoscopic standpoint does not occur, surgical intervention may be advisable. If hyperglycemia persists, a certain amount of restriction of carbohydrates is also advisable.

DUPUYTREN'S CONTRACTION, ARTHRITIS OR FIBROSITIS

To the Editor:—A man, aged 63, complains of a progressive stiffness of the joints for the past eight years with little pain, involving largely the smaller joints. The phalangeal joints of the hands and feet are practically fixed and the metatarsophalangeal joints, especially of the large toes, are greatly limited. There appears to be a slight atrophy of the small muscles of the hand, the joints are not enlarged, and there is but little sensory disturbance except a rather intense burning of the right foot. Is this a form of arthritis? The reflexes appear somewhat hyperactive but the same bilaterally, and no clonus is present. The flexor tendon of the third right finger is hard as if calcified, is contracted, and is attached to the overlying skin. This firm tendon interferes with the patient's work as a carpenter and also the finger is permanently fixed at the first phalangeal joint. The left hand appears to be on the same curve as the right because the skin appears attached over the corresponding tendon in the palm and at the wrist, and motion is limited. The patient has considered having the finger on the right hand amputated. Would this be the proper procedure? Would releasing the skin and probably the tendon sheath in the left hand avoid the contracture? Please enclose name.

M.D., Pennsylvania.

ANSWER.—The case suggests the need for distinguishing three conditions from one another: (1) Dupuytren's contraction, (2) chronic arthritis with fibrositis and fasciitis producing contraction resembling the Dupuytren type, and (3) "chronic fibrous rheumatism" of Jaccoud. The report is that the skin of the hand is firmly attached to the underlying tissues ("tendons") and that there is a flexion deformity of one phalangeal joint. "Dupuytren's contraction" is a palmar fasciitis resulting from inflammatory hyperplasia or "fibroid hypertrophy" of the palmar connective tissue. The condition affects the palmar fascia and skin and its digital prolongations. The statement is often mistakenly made that tendons are involved. When the affected fingers are extended, cordlike contractions become prominent in the palm, but these are not tendons; they are the contractions of the palmar fascia. Tendons are not affected, as operations on them have shown. At first a patient so afflicted will note a feeling of tightness in the palms of the hand or in the ring (fourth) or fifth finger. Neuralgic pains may be felt and the patient cannot fully extend a finger. Careful examination may reveal one or several nodules in the palmar fascia, most commonly near the base of the fifth finger. At first the nodule is not attached to the overlying skin; later the skin becomes adherent to the hypertrophied fascia and nodule in a hard, firm attachment. Contractions occur and one or more fingers may be flexed, sometimes sharply, on the palm. The condition is usually bilateral, although it often begins in one hand, especially the right, months or years before it appears in the left hand. The cause is unknown, but trauma, infection or a "trophoneurosis" has been held responsible. Since carpenters and others who use their hands extensively are most commonly affected, trauma is regarded as the most important aggravating, predisposing or localizing factor.

Textbooks and dictionaries define Dupuytren's contraction as disorder of the palms and do not describe it as affecting the feet. The patient under consideration apparently has stiffness of the metatarsophalangeal joints as well as of the hands. No contractions in the feet are mentioned. It is possible therefore that the patient does not have "true" Dupuytren's contraction but has "false" Dupuytren's contraction, which is not infrequently seen in cases of chronic arthritis. Patients who have chronic infectious (atrophic, rheumatoid, proliferative) arthritis frequently have an accompanying fibrositis and fasciitis and, when the palmar fascia, tendons and periarticular tissues are involved, contractions resembling Dupuytren's contraction may ensue. The inflammatory reaction of the "arthritis" invades subcutaneous, fibrous and fascial tissue: nodules may form and flexion deformities and contractures of one or more fingers may result, and the overlying skin may become firmly attached to fibrotic fascia as in true Dupuytren's contraction. The inquirer has not mentioned whether roentgenograms of the joints, flexed and otherwise, gave evidence of intra-articular as well as of periarticular disease. In chronic infectious arthritis, with or without contraction resembling the Dupuytren type, the sedimentation rate of the erythrocytes is practically always elevated (generally above 30 mm. at the end of one hour), and secondary hypochromic anemia and loss of weight are generally present. No studies on the sedimentation rate of the erythrocytes in Dupuytren's contraction seem available, but in cases of local or general fibrositis without arthritis the sedimentation rates are normal or but slightly elevated (less than 30 mm.) and one would expect rates to be normal in true Dupuytren's contraction, which is essentially a special form of fibrositis.

A rare and rather "malignant" form of fibrositis must also be considered: Jaccoud's fibrositis, or "rhumatisme chronique fibreux." In this disease many joints are involved in an "inveterate and aggravated form of fibrositis," which involves

not only periarticular tissues but also related tendon sheaths and aponeuroses. Many joints may be affected. Although deviations and subluxations may result from the marked contraction of cicatricial tissues, no actual arthritis is present even in joints that are inexorably fixed and seemingly ankylosed. No hypertrophic or osteophytic outgrowths of bone occur, and cartilage surfaces are normal even in the face of "pseudo-ankylosis." Contraction resembling the Dupuytren form may develop and because of the malpositions and apparent ankyloses the condition closely resembles the deformities of chronic infectious arthritis with which it was confused before Jaccoud's time.

The exact clinical relationships and differences between these three conditions—the fasciitis and contractions of true Dupuytren's disease, those of chronic infectious arthritis, and those of Jaccoud's rheumatism—have not been determined, but pathologically the three conditions seem to be closely related.

The patient should have treatment for the general disease (arthritis or fibrositis) and for the local condition in the hand. Removal of foci of infection seems rational but the patient's occupation, carpentry, suggests that the chronic trauma therefrom may have been at least an aggravating or localizing factor as far as the hands are concerned, although of course his occupation does not explain the involvement of the feet. Physical therapy and massage are indicated, but the condition may be too far advanced for relief to result. Various forms of surgical and nonsurgical therapy for such palmar contractures and flexions of fingers were described by Tubby. In a recent report, Meyerding surveyed the clinical features of Dupuytren's contraction affecting 448 hands of 273 patients. The pathologic condition was described and the technic of his operation was detailed. The most successful treatment was found to be removal of the contracting palmar fascia. Occasionally it seemed best to disarticulate and amputate part of a badly flexed finger and to use the skin of the finger as a pedicle graft. Often, however, correction of flexed fingers was accomplished by fascial resection without amputation.

References for Dupuytren's contraction are:

Tubby, A. H.: Deformities Including Diseases of the Bones and Joints, London, Macmillan & Co.: 1914, vol. 1, pp. 810-823.
Meyerding, H. W.: Dupuytren's Contracture, *Arch. Surg.* 32: 320-333 (Feb.) 1936.

For Jaccoud's rheumatism: *rhumatisme chronique fibreux*: Stockman, Ralph: *Rheumatism and Arthritis*, Edinburgh, W. Green and Son, Ltd., 1920, pp. 76-77.
Llewellyn, L. J., and Jones, A. B.: *Fibrositis*, New York, Rebman Company, 1915, pp. 91-94.

BLOOD IN SPINAL FLUID

To the Editor:—1. In the presence of a skull injury, is there any way of differentiating a bloody spinal fluid from an accidental bloody tap? 2. How long after bleeding into the subarachnoid space does xanthochromia develop? 3. If, in doing a spinal tap, there is accidental injury to a vein, how long afterward can one expect to find blood in the spinal fluid? 4. Will xanthochromia develop in the spinal fluid in such a case? In the case in question, a spinal tap thirty-six hours after head injury brought forth a markedly bloody fluid. On standing, a clump of blood cells settled to the bottom of the test tube, leaving a perfectly clear supernatant fluid. Two days later a second tap gave a hazy spinal fluid, which on microscopic examination proved to be due to red blood cells. Does this indicate that the blood in the spinal fluid was due to the head injury or might the blood in the second tap have been due to the trauma of the first tap? Please omit name. M.D., Pennsylvania.

ANSWER.—1. There is no absolute criterion for differentiating blood due to intracranial hemorrhage from that due to puncture trauma. The following points, however, may aid in the differentiation:

In puncture trauma the fluid becomes progressively clearer as it continues to flow out from the needle, while in intracranial hemorrhage the blood in the fluid is evenly distributed. In intracranial hemorrhage, minute clots may be present in the cerebrospinal fluid.

As a rule the blood clots on standing in puncture trauma while in intracranial hemorrhage it usually does not clot.

In puncture trauma the supernatant fluid is clear; in intracranial hemorrhage the supernatant fluid is xanthochromic.

The benzidine test on the supernatant fluid is usually negative in puncture trauma and positive in bloody fluid due to intracranial hemorrhage.

In intracranial hemorrhage, crenated cells are usually present in large numbers.

2. Xanthochromia usually begins to develop within a few hours after the onset of bleeding in the subarachnoid space and increases in intensity for the next few days.

3. Grossly the blood in the fluid due to traumatic puncture begins to diminish within a few hours. Haziness of the fluid usually persists for three or four days. Microscopic evidence of blood may persist even longer.

4. Xanthochromia does develop following a traumatic puncture unless a very small amount of blood was present to begin with.

5. In the case in question, the fact that a clump of cells settled in the bottom leaving a perfectly clear supernatant fluid speaks for the blood having been due to a traumatic spinal puncture. The hazy spinal fluid on the second puncture was most likely due to the residue from the original bloody puncture.

PERSISTENT ENURESIS IN BOY EIGHTEEN YEARS OLD

To the Editor:—An intelligent boy of 18 has always had nocturnal enuresis. It fails to respond to treatment. The enuresis may occur two or more nights in succession. Seldom has an interval of eight days passed without such an occurrence. The urine is normal. The basal metabolism rate was minus 7. The history and examination seem to show the condition purely functional. Reasonable trial of the following have made but little, if any, impression: (1) limitation of afternoon and evening fluid intake; (2) thyroid from 3 to 5 grains (0.2 to 0.3 Gm.) daily to physiologic symptoms of warmth and flushed skin; (3) whole pituitary orally, 12 grains (0.8 Gm.) daily; (4) twice weekly injections of from 1 to 2 cc. of antuitrin-S; (5) instillation in the nose on retiring of posterior pituitary powder or of postpituitary jelly; (6) injections of postpituitary 1 cc. each; (7) ephedrine hydrochloride three-fourths grain (0.05 Gm.) at bedtime to increase in a like amount every four to seven days (see R. W. Brookfield's article in the *Lancet*, Nov. 16, 1935). Atropine in increasing doses has not yet been used because in the beginning of treatment it was my belief that antuitrin-S might develop more growth in the prostatic region and produce a desired tone to the bladder sphincter and thus the condition be permanently overcome. Having failed in the use of the various gland products, I am now considering other measures. If one lessens the depth of sleep by benzedrine sulfate or ephedrine is it not reasonable to think that the desire to urinate might awaken one? I would appreciate your suggestions for continued or different treatment.

LEE W. PAUL, M.D., Los Angeles.

ANSWER.—The most difficult cases of enuresis to treat are those of long standing in older children. It is rare for this condition to continue beyond the age of puberty unless there is an organic cause as the basis for the symptom. The age of the patient is 18 years. The treatment of the condition with drugs is at least disappointing. In the case in question, before advocating any further drug treatment, it would seem essential to investigate some underlying organic cause. Among the more common causes of paralysis of the bladder are spina bifida, either of the external or of the occult type, neoplasm of the cord, and transverse myelitis following infectious disease. Other organic conditions that might cause enuresis are foreign body in the bladder, kidney calculus, renal embolism or thrombosis, and congenital malformation. In order to rule out these conditions, x-ray examination of the spine and genito-urinary tract would be indicated, as well as a complete neurologic examination, and finally, if these are entirely negative, an instrumental urologic examination would seem warranted. If these tests satisfactorily rule out any organic reason for the enuresis, psychologic investigation and therapy would seem preferable to further drug or endocrine treatment.

TAPEWORM

To the Editor:—Somewhere, sometime, I noticed a statement made that if a protruding section should be injected with some medicament, it would cause the head of a tapeworm to loosen so it could be expelled. I have recently had a couple of cases of beef tapeworm and find it quite difficult with the routine treatment to get the head, and if it is possible by injecting the terminal segment with anything, it might be a help. What was the medicament used? J. W. SEIDS, M.D., Moline, Ill.

ANSWER.—There is no drug that will cause the expulsion of the entire tapeworm by injection of the terminal segment. The scolex or head of the cestodes or tapeworms has from two to four suckers and may be provided also with clawlike curved hooks. The tapeworm thus fastens itself to the intestinal wall.

Taenia saginata, the beef tapeworm, has a head about 2 mm. wide and has a flat crown and four large suckers. This worm may have from 200 to 450 segments and is often from 2 to 4 meters in length. No drug could penetrate from the terminal segment through all the proglottides to reach the head and cause its death.

The treatment still consists in the administration of an anthelmintic drug by mouth after proper preparation of the patient. The patient should take a light diet for two days. A large enema of cold water or a thorough saline purge should be given. No breakfast should be taken on the day the drug is administered. The best remedy is perhaps pelletierine, which is not suitable for children and is expensive. The dose is from 0.26 to 0.5 Gm. (4 to 8 grains) with 0.3 Gm. (5 grains) of tannic acid in sweetened water. For children the oleoresin of male fern is best. Four doses of 15 minims (0.9 cc.) each in

capsules is given at intervals of an hour, followed by an active purge. The dose required can be considerably reduced by giving it through a duodenal tube, thus reducing the danger of toxic effects. Pumpkin seeds, kousso, powdered kamala, and thymol are also used.

TRAUMA AND BRAIN TUMOR

To the Editor:—A man, aged 38, rather athletic and always in perfect health, was struck by an automobile and thrown in the air, striking his shoulder and possibly his head as he landed on the street curb. He was unconscious for about half an hour. On gaining consciousness he complained of numbness in his right arm, forearm, hand and right foot. When allowed to get out of bed a few months later he had no control of his right leg. His speech became rather indistinct. Two encephalograms, one taken about a month and the other about two months after the accident revealed nothing. A diagnosis of cerebral hemorrhage with cerebral softening was made. About seven months after the accident the patient died. An autopsy disclosed a glioblastoma. Since I understand that this type of tumor is rather rapid in developing, I am wondering if it could have been caused by the trauma and resulting injuries incurred at the time of the accident. Please omit name.

M.D., Ohio.

ANSWER:—The query fails to mention many important signs that are usually present in both glioblastomas and craniocerebral injuries. These are headaches, vomiting, choked disks, defects in the visual fields, convulsions, uncinat fits and aphasias. It is easy to elicit a trifling trauma to the head in almost every case of brain tumor. Glioblastomas begin abruptly, and hemorrhages and degenerative lesions are the most common two changes found in this type of tumor. Further, this type of neoplasm is very malignant, grows rapidly and inevitably terminates fatally within twelve months. If it is certain that this man was perfectly well previous to the automobile accident, one must by exclusion state that the accident was a factor in producing this tumor. One must not forget the possibility that the man may have had a brain tumor and then had a convulsion or an attack of petit mal which made possible the automobile accident. In this way the accident may have been an aggravating factor of a preexisting lesion.

WRITERS' CRAMP OR EFFECTS OF FOREIGN BODY

To the Editor:—A man, aged 30, a surveyor and draftsman, has for the past eighteen months been having an acute cramping of the thumb, index and middle fingers of his right hand after writing a short time. He is of quite stable temperament and physically I can find nothing abnormal. His past history is negative except that about fifteen years ago a large wooden splinter entered his right forearm over the extensor muscles. The splinter was never removed and until about two years ago remained readily palpable beneath the skin. The Wassermann reaction is negative and the urine and the blood count are normal. Roentgenograms of the cervical and upper thoracic spines and of the right arm and forearm and hand give normal results. I have made a diagnosis of writers' cramp. Would you suggest any other diagnosis and any form of treatment? At present he is attempting to learn to use his left hand and I have given him a few diathermy treatments over the arm. Please omit name.

M.D., Hawaii.

ANSWER:—Under ordinary circumstances the diagnosis of writers' cramp would be correct, but in this particular case, in view of the migration of the wooden splinter to the depths of the forearm, and in the absence of any symptoms pointing to any other cause for the cramp, it must be assumed that the splinter is lodged in the substance of the extensor muscles or adjacent to the nerve supply to the extensor muscles, causing irritation of and unusual contractions in the extensors of the thumb, index and middle fingers. Soft tissue roentgenograms may be made to identify, if possible, the shadow of the splinter. Deep palpation may elicit some particular point of tenderness or a thickening of tissue that would give a clue to the location of the splinter. If either or both of these methods indicate the probable site of the splinter, it should be removed by operation.

DESTRUCTION OF SINUSES IN PENIS

To the Editor:—I have a patient with hypospadias. In addition to the hypospadias there are two sinuses, which are small and parallel the main channel for about 1 or 1½ inches. The patient has a gonorrheal urethritis. Would it be better to open the sinuses or treat them by injection? I have been injecting 5 per cent silver nucleinate into the sinuses with a blunt irrigating needle.

D. J. ZERBOLIO, M.D., Benld, Ill.

ANSWER:—The best way to clear up a condition such as discussed is by fulguration. A fine electrode can be placed in each tract, down to the bottom, and with a mild current the tract can be completely destroyed. This is much better than silver nitrate injections, which are often followed by severe reaction and at times by abscess formation.

PREVENTION OF EXCORIATION OF SKIN AFTER ILEOSTOMY

To the Editor:—What can be done to prevent and to relieve the excoriation of the skin of the abdomen by the drainage from a ileostomy? When excretion through the incision is complete, i. e., there are no bowel movements, what can be done to shunt some food through and reestablish normal function? In cases in which the ileostomy is so high that insufficient digestion and absorption have taken place to maintain body weight, what is the best procedure to follow?

DONALD W. RICHIE, M.D., Croton Falls, N. Y.

ANSWER:—Excoriation of the skin around an ileostomy may be prevented by protecting the skin by some substance that is impervious to the intestinal juices: petrolatum, zinc oxide ointment, kaolin paste. The last named is the most effective. It should be applied as a thick paste and allowed to dry before dressings are applied. Aluminum paste also has been recommended. A discussion of this by McLanahan and a formula may be found in THE JOURNAL, January 30, page 385.

When the excretion through the excision is complete, few measures short of surgery are of benefit in reestablishing the normal function. Occasionally a small catheter may be passed into the lower loop of the bowel and fluids and food administered by this means. However, in most cases it will be necessary to open the abdomen at the site of the fistula and make an anatomic closure.

In high fistulas of the small intestine the wound may be protected by continued suction and the body weight and fluids maintained by the administration of subcutaneous and intravenous saline and dextrose solutions. This type of case, however, will almost invariably require operative closure unless the fistula is a duodenal one, which more likely will respond to continued suction siphonage.

BLOOD SEDIMENTATION RATE IN SYPHILIS

To the Editor:—What effect does syphilis have on the blood sedimentation rate?

J. B. STOKES, M.D., Ottawa, Ill.

ANSWER:—The blood sedimentation rate is increased in syphilis, as in many other infectious diseases. This is especially true of the secondary stage, and of the tertiary stage when there is progression of the disease. However, the sedimentation test is of little value in the diagnosis of syphilis, as there are many causes of accelerated sedimentation of the erythrocytes. A positive Wassermann and Kahn test are diagnostic of syphilis. A patient may have syphilis with a negative Wassermann and Kahn reaction. Only 80 per cent of patients with syphilitic aortic aneurysm give a positive Wassermann test. A positive Wassermann reaction is diagnostic of syphilis; a negative reaction does not always exclude syphilis.

TREATMENT OF HYDROCELE

To the Editor:—In the answer to an inquiry concerning the treatment of hydrocele (THE JOURNAL, March 20, p. 997) it is stated that the so-called bottle-neck operation offers excellent results. I beg to differ. When it was introduced some years ago, the simplicity of the procedure appealed to me, as it did to others, very much, and I did a number of such operations. To my great regret, however, I was obliged to abandon it for the reason that several of my patients were left with persistently enlarged testes. I have seen several reports of a similar experience. I have never seen any adequate explanation offered as to why it should occur. The most satisfactory type of operation, in my opinion, is excision of the sac, cutting it away 1 or 2 cm. from the point where the sac is reflected onto the testicle. This is best done through the high incision over the external abdominal ring. The simplest type of operation, excluding injection, is to open the hydrocele through a scrotal incision and pack the cavity with gauze.

JOHN D. SINGLEY, M.D., Pittsburgh.

"GLYCOSURIA IN PNEUMONIA AND OTHER INFECTIONS"

To the Editor:—The query and answer on this subject (THE JOURNAL, January 2, p. 64) do not seem to me to be entirely justified. The gist of this answer appears to be that: 1. Infection or toxemia damages the pancreas and decreases the secretion of insulin. 2. Insulin is indicated in the treatment of such glycosurias. 3. High carbohydrate treatment causes harm by exhausting the islets of Langerhans. It would not matter so much if this answer represented merely a difference in opinion regarding the theoretical aspects of carbohydrate metabolism. I believe, however, that the therapeutic advice implied by the answer is wrong and dangerous because: 1. There is good evidence that infection or toxemia produces its effect not by decreasing the amount of available insulin but by interfering with the physiologic action of insulin whether derived from the patient's own pancreas or administered from without. 2. There is evidence that the administration of insulin to the toxic organism, except when diabetes mellitus is also present, may actually shorten life. 3. There is evidence that the administration of high carbohydrate treatment is not contraindicated but is rather the most effective method of treatment.

SAMUEL SOSKIN, M.D., Chicago.
Director of Metabolic and Endocrine
Research, Michael Reese Hospital.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Third Annual Meeting, held in Chicago,
Feb. 15 and 16, 1937

(Concluded from page 1366)

DR. CHARLES E. HUMISTON, Chicago, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 16—AFTERNOON

Medicine in Education

MAX MASON, PH.D., Pasadena, Calif.: Medicine is one of the most interesting of pursuits, not only for its enormous importance but also for the progress it has shown, which is characteristic of our whole procedure, the procedure of the rational animal. We start doing things by rule of thumb, intuition, and accomplish them through a thing called an art. As the art grows curiosity grows, and the art of healing became analyzed into a set of component sciences. As the needs of the human being for betterment became greater, the analyzation into sciences gave an increasing knowledge so that we kept naturally with growing needs and growing knowledge and a continual extension of the domain over life that the practicing physician had to exercise.

We are not going to force on the medical profession a fundamental rôle in education. It is going to force itself on the medical profession. A profession that has to do with the physical and mental well being of the race cannot neglect the most important factor in that physical and mental well being, which is education. Education is primarily an inculcation of the idea of rational procedure, procedure based on accurate scientific knowledge, and the practice of medicine was a pioneer in that function. Mental attitudes are as contagious as measles and, by example, the medical profession has been educating in rationality of living. We have had 300 years of intense application of the method of science since the new learning, only 300 years, but it has been an immense period. It has been a period of freedom from fear, release from appeal to authority and superstition, and the gaining of an immense amount of detailed, accurate knowledge about the forces of the universe. Basic sciences have grown, have become one—physics, chemistry, mathematics. With a rapidly increasing theoretical knowledge of the sciences has come a rapid increase in the technological applications of them, so much so that it is a commonplace to say that man, having mastered his physical environment, has now created for himself powers over the forces of nature so great that they threaten his own destruction.

The pessimist insists that it is true, and would declare a moratorium on scientific research. "We already know too much science" is the word. Man knows more about the forces of nature than he should. He is going to use them and he is using them for destructive purposes. We see economic selfishness, racial passion and prejudice determining these things and in the growth of large political groups with the enormous power for destruction that they possess, with the hatreds, passions and prejudices engendered by narrowness of mind, the pessimist finds the danger of the race, and many go so far as to say "Stop your theoretical considerations. You are not going to have any universe left to carry on your great experimentations."

What is the cure for it? We have said that education is the cure for everything, and perhaps it is. At any rate, professional educators are stirred up over the fact that they are not meeting the fundamental needs of the circumstances and there is a great deal of discussion along the theme of education in a changing world, the university in the new world. If these discussions result in the deepening of insight into the educational process and the ceasing of the teaching of dead ideas and pseudoculture, it will be all to the good. But if they mean throwing overboard basic, sensible, disciplinary pro-

cedures and having every student in the university become a young Demosthenes and a solver of all the social problems of the world, if they mean that he shall be taught of the exact circumstances surrounding our economic and political life so he can step out into citizenship and solve the problems of the world, then I do not think we have much to hope for. We need education for a world of change; the student should be taught to participate in any situation and he need not be taught the details of the situation. We have the same simplicity today for mental training that we have had all the time. We have to find the highest common factors of successful living. It is more important than all of the informational knowledge and training in technic that you could give. There is a technic of rational living and the medical man has been teaching it through his practice for all these generations. It is the objective application to problems of individual and group living of the scientific method.

What is the matter with education? I suppose a million people have given speeches about it and every man differs. Education is a peculiar process, anyway. It is an artificial process, in the first place. The natural form of education is experience, but we haven't time to put ourselves through experience. We try to give them epitomized experience. We try to give them the benefits of it without their having had it, and that is a pretty difficult thing. We used to have educational procedures of great value simply existing in our pioneer life. There, one was in touch with reality day after day. With increased artificiality of living, the checks on method of conduct have become less and education has begun rapidly to overshoot the mark, to deal with detail and with information. Students of education and teachers are beginning to realize and beginning with the primary grades they are beginning to understand that man is a personality that can be enormously influenced by his experience, and it is their duty to influence him so that every person shall have the great opportunity of being born into a world where his personality can be formed by educational procedure into one of the highest intellectuality and the greatest emotional stability that his inherited characteristics will admit of. We are far from that stage at the present time.

The medical man has been a great demonstrator of the application of objective thinking and the scientific method to the problems of life. By virtue of his intimate relationships he has had to come to grips with all the stresses that exist in the mental life of people. He has had to broaden out in his sympathies and in his understanding. He is an example of the rational animal and he can't forget it and it is more important than the cures he gives for the sore throats or for anything else. Whether he wants to be or not, in this simple manner, he has been a profound and enormous force for informal education to the end and aim of teaching the technic of living that is right and that is proper.

There is another slant on this need of education. It consists in the familiar picture of our civilized world today with regard to mental disorder. Is it any wonder that man is showing the casualties of his evolutionary struggle? If we start with the simple unicellular organisms, I don't suppose amoebas are subject to inferiority complexes or compulsion neuroses. They are simple. Man enjoys his preeminence because of the development of a highly specialized central nervous system geared to his whole physiologic make-up, but the meanings of that physiologic gearing have been lost. After coming through in the process of adaptation to his environment with a set of accelerators of action in his hormones, with the gearing of emotion, thought and action correspondent to the necessities of uncivilized life, he suddenly bursts out and becomes an artificial liver. He lives in pseudo-experience more than he does in real experience. His thoughts are the ghosts of experiences and you can't go through an intellectual process without arousing a high degree of emotional picture behind it, because every intellectual process calls into being a residue of all the memories of the life of the man and those memories are colored highly with emotional content.

He sits, doing desk work, thinking of things, worrying about things, pictures flashing through his mind consciously and subconsciously, dramatic pictures involving responses of anger,

of pain, of worry, of happiness, of whatnot. The emotional response is present in the artificial life of the mind to as high a degree as in the real life of the savage when he meets a physical danger, but he doesn't burn it up. He goes on poisoning himself with it. He lives in harmonic imbalance month in and month out, an abnormal, strange, new thing, this life of the mind and of the emotion, new from the evolutionary point of view. Is it any wonder he suffers from disorders? No.

What is the answer? To understand the process and to aid in keeping man sane and balanced as he proceeds evolving his own civilization. The thing is with us so much that we fail to realize its dramatic and terrible importance no matter how many speeches are made of it and how many reports are made of it.

If there is any major truth, it is that the profound program of human beings today in the advance and application of knowledge lies in a deeper understanding of the causes of mental disorder, of the methods of mental training, emotional and intellectual, to the end that we shall bring out from the race as stable, as intelligent and as happy a group as is possible, and we are far from that at the present time, far not only because of lack of knowledge but far because we are not applying the knowledge that we should apply. We have at best a condition of rationality, and if we took the index of rationality of all the human beings and plotted them we would have a broad curve, spread out, and if we took the spectrum of any individual we would have a thing that looked like the solar system, with heights and deep grooves. Any of us who have just passed through a political campaign will recognize that fact. The ability to maintain an emotional stability, a normal degree of lack of idiotic credulity, a reasonable degree of speaking decently of a man who probably is decent, and the ordinary modes of conduct of a rational human being are lost in about 70 per cent of men whom one would call educated. They are incapable of rational thought on that subject. We may have lost something of our conceit in thinking of man, but we have gained enormously because we have put him into the heart of nature. We are thinking of him as a heart of a universe apart and composed of parts subject to study, subject to training and, above all, subject to regularities of behavior that can be understood. Is there going to be knowledge adequate to that, the great problem of humanity? I am enthusiastic about the trend of sciences to a degree that I admit is completely irrational. At that point my curve of rationality disappears. I see in these few decades the turning point in the history of the world as regards the use of science. Three hundred years has evolved beautiful methods and an enormous array of facts and they have been used for almost nothing of any importance, but at last we are getting somewhere.

The tools of the laboratory, the methods of science are being turned with enormous rapidity on the one problem worth while, self understanding of the human being, his characteristics, his action patterns, the somatic and the psychologic factors determining his action as a normal human being. At last there is a reason for turning on all this knowledge, more than for the refrigerator, the radio, more than for any of the labor-saving devices, more fraught with potentiality for human welfare.

All the sciences are at last combining in one attack that is worth while, the attack on an understanding of man, and you representatives of a great profession can see what is coming, for you are the applicators of that science. You are the cutting edge, and the medical profession will be the cutting edge of that tool which is composed of all human knowledge, the cutting edge in applying to the benefit of human character and human happiness this dearly won knowledge of the physical and chemical behavior of man. I think it is a picture of the most sublime optimism. I think it literally is a turning point in the history of a race. Consciously or unconsciously, 300 years of the scientific method has led to the point at which this knowledge can be put to something worth while. You have been forced to be psychiatrists, psychologists, anatomists. The beauty of all science is that it seems to grow more and more complex and then sweeping generalities arise that make a vast array of fields understandable and comprehensible where before it seemed incredibly difficult, and I believe that will be

the same thing in this enormously complicated field of the psychobiologic nature of man.

Simplicities are arising. Broad and deep channels of understanding are being created into this realm of difficulty and when we get through, what is education going to mean a decade after decade knowledge of what we are educating comes? Think of education in the past. In whose hands was it? Was it in the hands of people who knew anything about growth and development? No. The medical profession in the past was a great rationalizer in giving an example of unselfish, sympathetic application of scientific knowledge. It taught by example the rational approach instead of the passionate, irrational approach to the problems of life. Education is overshooting the mark in its own province by forty years, and one finds today that the best reading for an adult is a high school textbook. In a higher degree, we are training distorted minds and warped emotional bases for performance. Let's stop. Let's train the mind and the emotional background so that if they perform or not they will be able to perform well.

DISCUSSION

DR. LOUIS B. WILSON, Rochester, Minn.: The American Board of Ophthalmology was developed twenty-three years ago. Ten years ago the National Board of Medical Examiners was approached by several specialty groups with reference to their taking over the job of the certification of specialists. At that time a committee was appointed consisting of the three surgeons generals of the federal services, the secretary of the national board and myself, to consider the question of the certification of specialists. It took us about five or six years before we could get the groups concerned together. Yet out of chaos has come a certain amount of order and now the American Medical Association, quite properly, is thoroughly behind the proposition. Hitherto, all of our examinations and all of our work has been directed toward whether we should or should not turn out students as certified physicians to practice medicine in the community. We have given little thought to their future specialism; in fact, we have carefully avoided that. Now the medical profession as a group realizes that it is necessary to take some cognizance of the possibilities of their becoming specialists. Every dean here who has concerned himself in the last few years with the selection of men for departments in his medical school knows that it is practically impossible to get reliable information in adequate amounts concerning the individual whom he is considering for the heading of a department in his medical school. If we can devise, right now, in connection with our graduate work, some adequate record of an individual's attainments on his way up through the medical school, because it isn't there now, through the graduate school, because it isn't there now, until we come to select men for the faculties we are not only going to have better general practitioners and better specialists in all fields but we are going to have better men on our faculties in our medical schools. The present method of listing the names of men who say they are confining their practice to this or that, as now made in the American Medical Directory is inadequate. The present method of stating the residencies in hospitals that are approved for training in the specialties is based on inadequate and inaccurate data, but we all agree that it must be reformed. But in the reforming of that let there be certain ideals. Those I have mentioned of recording a man's attainments, his abilities, his skill—those are to me most significant.

DR. GEORGE H. MEEKER, Philadelphia: It seems to me that we start off on the wrong foot to speak of medical specialization when what we mean is clinical specialization. The whole atmosphere of this movement is clinical specialization. In order to get clearly in our mind what is meant by a specialist we have first to think of the patient, not of the physician who claims himself to be a clinical specialist or of the instrumentalities whereby he becomes so certified. We ought to start by the dictum that the patient is entitled to that sort of a clinical service which modern medical knowledge and skill is potentially capable of rendering. If we start with that thought in mind it makes it easier to understand what we should mean by the clinical specialist. In one way he could be called a

master clinician, but the simplest way is to think of him as a clinical expert. Since only the expert may render to the patient that clinical service which is the patient's right, it is proper that there should be means not only for training physicians as clinical experts but also that there should be certifying boards such as we have talked about today duly authorized to make known to both patient and the profession who are those physicians who have become so designated. To my mind the general practitioner is the most important of all clinical specialists. If he is real, I argue that he should be a certificant of the American Board of Internal Medicine, just as fully qualified in internal medicine as any professing internist, and in addition he should be an expert in the case management of his patient. When we approach the details of the activities of the various boards, we should be very precise in our terminology. If we look at it from the standpoint of instrumentalities, I think we would be much more precise if we would speak of it as graduate clinical education rather than as graduate medical education. One of those instrumentalities has been special hospital residencies. If all we are going to do is to call special hospital residencies the instrumentality alone for doing this work, let us say so. Let us not leave it so vague as it is in the statement of the general principles of the advisory board for the medical specialist. For instance, we start off by saying "intensive graduate training." If we mean by intensive graduate training what a good residency and a specialty imply, let us say so. Otherwise, the wording is misleading. In other words, I haven't the slightest idea of what the word "intensive" here means. Probably the board has a clear idea of what that means, but I should have rubbed that word out entirely if I had my say. I have tried to emphasize that it is important to have our terminology correct. I don't think the terminology is right and I don't think our thoughts are clear on certain vital points.

DR. B. R. SHURLY, Detroit: If we are to progress, it is essential that the medical school, the hospital, the American Medical Association, the Association of Medical Colleges, the deans and all the organizing forces of education should be brought together on a perfect understanding of what is the best thing to do at this time in order to give young men the best we have and to let them know earlier what their training for specialism may be. With twelve special boards, young men are at sea as to what the requirements of those boards may be. There is a terrific amount of confusion. We have mapped out a premedical education for our students in medical colleges. It is just as necessary to have an earlier prespecialty education, to have the graduate schools carefully outline their ability to take care of these men. The Board of Otolaryngology has examined more than 2,000 men for certification. The progress has been great. The men who come up at present are much better prepared. We have a necessary 160 new men each year required in a specialty to cover the demands as they are in this country. At present there are only 100 hospital residencies, and only fifty that are of a high order. With this rapid advance in specialism, the progress is not perfectly even in the education of these men. Some of them are woefully deficient in the proper essentials of bedside medicine and general medicine. Under our progressive methods of carrying education into higher and higher fields we should not forget that general medicine cannot be; as far as the eye, ear, nose and throat is concerned, absolutely cut off at the neck, and that is the general trend at present. My plea is that, in the educational development of this new era, we rest firmly on the foundations of medicine and surgery as our rock of Gibraltar by which we steer medical education for specialists into the future.

DR. CHARLES GORDON HEYD, New York: I agree thoroughly with the preceding speakers. The educational value of research is of course apparent to every educator, but the problem of research shall not be weighed indeterminately in the examination of the qualifications for the specialist. Precision of terms we all welcome, and the fact that all specialism must fit into the general pattern of medical education I think we are agreed on. I want at this time, and I did not intend to slight three

organizations, to bring the laurel of grateful remembrance to the Board of Ophthalmology, which is a pioneer; to the Board of Otolaryngology, and to the Board of Obstetrics and Gynecology, which has entered the field more recently.

Relation of the American Medical Association to the Certification of Specialists

DR. CHARLES GORDON HEYD, New York: This article was published in full in *THE JOURNAL*, March 27, page 1017.

The Increase in the Number of Practitioners in the Country

DR. HAROLD RYPINS, Albany, N. Y.: An accurate count of the number of physicians actually engaged in the active practice of their profession in any given jurisdiction is surprisingly difficult to obtain. The 1936 edition of the American Medical Directory gives comparative figures for the number of physicians in this country by states and totals for the country for various years between 1906 and 1934. These figures would appear to be highly accurate. However, the same directory lists 24,013 physicians in New York State, whereas the records of the New York State Department of Education show that only 21,020 were registered as in active practice. Accordingly, there is a difference of 2,993, or 14.2 per cent, between the number of physicians merely residing in New York State and the number sufficiently active in the practice of medicine to pay a two dollar registration fee legalizing such practice. This would indicate that the usual number of physicians given for any area is about 15 per cent too high, if our object is to count only those physicians actively engaged in the practice of their profession. This disproportionate increase in the number of physicians in New York during the past decade led me to study the cause of the increase for the country as a whole. In making this study I have used New York State data, as they are most easily available, but I have attempted to correlate them with information derived from a questionnaire sent to all state licensing boards, to which thirty-six complete replies were received.

The annual increment in the number of physicians licensed comes from four sources: (1) recent graduates of registered medical schools throughout the United States and Canada, (2) American students graduating from foreign medical schools, (3) physicians licensed in other states or countries obtaining licenses under reciprocity agreements or by endorsement, and (4) native graduates of acceptable foreign schools.

The figures for the number of first year students admitted to medical schools throughout the United States since 1933, when the peak was reached, indicate a falling off of 7 per cent in the number of freshmen admitted this year and a diminution of 12.5 per cent in the number of students admitted during the past four years. This is largely the result of the inspection of medical schools by the Council on Medical Education and Hospitals of the American Medical Association, in conjunction with the Federation of State Medical Boards of the United States and the Association of American Medical Colleges, and is due to the finding that a number of medical schools were accepting a larger number of students each year than their laboratory and clinical facilities warranted for the maintenance of proper educational standards. The number of freshmen admitted into the nine registered medical schools in New York State has dropped from 716 in 1934-1935 to 685 in 1935-1936, or a fall of 4.7 per cent in one year. In short, there is a constant decrease in the number of new graduates of registered medical schools; that is, in the most eligible and desirable group of applicants for licensure.

The number of American students studying abroad reached the high point of 2,054 in 1932-1933. This number fell off slightly during the succeeding two years but has dropped sharply to 1,494 for the year 1935-1936. The falling off in the number of American students studying medicine abroad is the result of the activities of the Joint Committee on Foreign Medical Students, composed of the American Medical Association, the National Board of Medical Examiners, the Association of American Medical Colleges and the Federation of

State Medical Boards. As a result of this committee's activities there are at present only two countries, namely, Italy and the British Isles, in which American students may pursue their professional studies in the expectation of obtaining admission to licensure in most of the states.

In the year 1935, 172 graduates of New York medical schools, licensed in New York State, obtained licenses in other states under reciprocity agreements or by endorsement of their New York licenses. In the same year, 175 licenses of other American states were licensed in New York under similar circumstances. It is evident that the inflow and outgo of physicians from other states by endorsement or reciprocity practically cancel out, and it is eminently desirable that qualified practitioners in one state should be able to move with as little difficulty as possible to another. The influx of physicians from other states is not a factor in the increased number of physicians during the past decade.

The table gives the number and percentage of foreign physicians licensed in thirty-six states for the past year and for the past five years, respectively, as compared with New York State. It appears that during the past year the medical population of thirty-six other states was increased 0.1 per cent by the licensure of foreign-born physicians, while the medical population of New York State was increased 1.4 per cent, or fourteen times as much as the country at large. Similarly, for the past five years the increase in the other states was less than 0.4 per cent, as compared to 4 per cent in New York State. Thus, the licensure of foreign-born physicians in New

of a foreigner's obtaining admission to advanced standing in recognized American medical schools, this ruling, again, is almost prohibitory.

Of the thirty-seven states for which data were available, twenty-one practically never admit foreigners to examination. This leaves sixteen states where licensure is a possibility. In all these sixteen states, however, it is now necessary for the applicant, no matter how many years he has been out of medical school, to pass the full written licensing examination required of recent American graduates, in a language which is foreign to him. When it is noted (1) that the average foreign applicant has been out of school from ten to twenty years, (2) that it is extremely difficult even for Americans to pass a state licensing examination five years after graduation and (3) that it is profoundly difficult for students over 30 years of age to learn to speak and write adequately a foreign language as difficult as English, it is evident that the requirement of passing the regular medical licensing examination in the English language is an obstacle that will discourage and stop all but most highly intelligent and persistent applicants.

Bearing in mind that licensure by endorsement without examination has not been permitted even in New York State since Oct. 15, 1936, we may subtract the 482 foreigners so licensed from 1,439, the total number of foreign graduates licensed in thirty-seven states during the past five years. This leaves only 957 foreigners who have been able to pass the medical licensing examinations in the various states, or an average of less than 200 foreign-born graduates a year for the entire country.

Graduate Instruction and the State Medical Association

DR. CHARLES R. SCOTT, Twin Falls, Idaho: The undergraduate phase of medical education has reached an excellence in the United States that may well afford comfort and assurance to the nation. Immediate graduate instruction has also attained a high degree of excellence in the hands of universities and allied hospitals, with their fellowships and foundations for research. But there is a further field for graduate instruction to those men who practice remedial and preventive medicine all over the nation in town and hamlet and who have been weaned from their alma mater ten and twenty and thirty or more years. These are the men on whom a majority of the people must depend for health. And these are the men who are not permitted for geographic and economic reasons to return to the medical centers to partake of the organized instruction there prepared for them. Medical educators have known this need and have attempted to meet it. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, June 30, 1934, published a report by Dr. Leroy E. Parkins of Harvard Medical School which shows the conscientious efforts being made, as have the news items in THE JOURNAL since that date. It seems evident that many of these generous efforts have not been entirely satisfactory to either the donors or the recipients. There has seemed to be a sense of their futility to either essayists or their audience. The inevitable result of such feeling is poor attendance. At the time I assumed the responsibilities of leading our Idaho state society I had finished a term as member of the House of Delegates of the American Medical Association and was quite sensitive to the need for an effective organization of medical men for protective purposes.

In an effort to establish a satisfactory state medical society meeting, we in Idaho evolved a plan which has been found satisfactory. We devote five days to our meeting. This gives time for the teachers to get their lessons into our minds in a good pedagogic manner. We organize a course of instruction on topics of value to the most doctors and to the most patients possible. The members from all over the state are free in suggesting to us the topics on which they feel they need to be brought up to date. We have one instructor in a fundamental science who lays the foundation for the clinical subjects to be treated each day. We have had a physiologist, an anatomist and a pharmacologist, and this year we shall have a pathologist. We obtain five active teachers of the type whom the students consider to be the men from whom they really learn the most. These will be found to be men who know their subjects well and who are gifted pedagogically. The men are chosen

Licensure of Foreign Physicians

	Number of Physicians	Foreign Physicians		Foreign Physicians	
		Licensed 1935-36	Per Cent Increase	Licensed 1931-36	Per Cent Increase
New York.....	24,013	343	1.4%	961	4.0%
Thirty-six other states	115,412	114	0.1%	478	0.4%

York State during the past five years is ten times as great as their licensure in thirty-six other states for which data are available. Of the 961 foreign physicians licensed in New York during the past five years, 479 were licensed after examination. Four hundred and eighty-two were licensed without examination, by endorsement of their licenses, on submission of satisfactory evidence of acceptable education and not less than five years of legal and reputable practice. All the 482 physicians licensed without examination by endorsement are foreign born and include Canadians. A recent ruling in New York requires all foreign-trained applicants for any profession to pass the full written licensing examination for admission to the profession.

It is clear that the licensure of foreign physicians is the largest potential source of increase in the number of practitioners in a community. It is of interest to note the various devices which different states employ to restrict licensure of this group. These measures include (1) full American citizenship requirement, (2) regraduation from an American medical school, (3) internship in recognized hospitals, (4) period of residence in the state, (5) passing of a regular written licensing examination in the English language and (6) combinations of these. Of the thirty-seven states, including New York, for which data are available, nine have no citizenship requirement, sixteen require first papers only and twelve require full citizenship for licensure. Thus a residence of at least six years is required for licensure of a foreigner in Arkansas, Delaware, Florida, Georgia, Kansas, Kentucky, Michigan, Minnesota, Nebraska, South Dakota, Tennessee and Utah. Except in the case of a young man with private means this regulation is practically prohibitory. The following ten states require a foreigner to obtain an additional medical degree from an acceptable medical school: Delaware, District of Columbia, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Nevada, New Mexico and Tennessee. In view of the extreme difficulty

after a conference first with their dean and then with them in person. We always obtain these men from the faculty of one medical school. They then organize themselves into a sort of traveling faculty and choose one of their number as its dean. Through him the topics are organized and correlated. The men whom we have had have told me that they have found it necessary to hold numerous conferences to get their symposiums harmonized. We have five fifty minute lectures each day, three in the morning and two in the afternoon. At noon there are round table luncheon discussions, one for each lecturer, and these are considered most profitable. We find that, at our average age, five hours is about all we can take with profit in one day. All of the expenses of our faculty from home town back to home town are paid by our society, and personal salesmanship is tabu. It is probably better to have the faculty from so far away that this temptation is removed. We devote one evening to a public meeting addressed by some of our faculty. The people appreciate and approve this feature. We devote another evening to a banquet, to which we invite as our guests a considerable number of influential laymen from all over the state. This banqueting assembly is addressed by a fluent and prominent man, not of our profession, on a topic not related to medicine. By having these lay lectures and the banquet address we are able to accomplish statewide newspaper publicity covering the nature of our meeting and the opportunity offered the doctors of the state that brands the doctor who never attends with the people in his community. During the five days there are ample hours for the business of the state society to be carried on without interfering with any man attending the lectures. There is also ample time for golf and other diversions.

This experiment of ours was authorized after several years of tentative suggestions to our house of delegates and was launched with some-trepidation by its proponents. The results have been: 1. An increase in our attendance from around fifty up to around 175. There are not 300 doctors in active practice in the state. 2. An increase approaching 50 per cent in active members of our society and an enthusiastic appreciation from the rank and file of the profession in the state as to the value of the society and its meeting. 3. The establishment of a foundation fund, now approaching \$10,000, the income from which is to be used only for the expenses of graduate medical education under the auspices of our society. 4. An increased respect for our profession in our state together with an added weight of influence by the profession on the legislature and the state administration. 5. The enthusiastic cooperation from the university faculties who have served us, together with encouragement from them to make this report and to continue and perfect our plan.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examination of state and territorial boards were published in THE JOURNAL, April 17, page 1367.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Oral examinations for Group A and B applicants will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Practical examination will be given at Philadelphia in June. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Practical, oral and clinical examinations for Group A and B applicants will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklín, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Oral examination. Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Virginia December Examination

Dr. J. W. Preston, secretary, Board of Medical Examiners of Virginia, reports the written examination held in Richmond, Dec. 9-12, 1936. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine.....	(1935)	81,	81
University of Virginia Department of Medicine.....	(1934)		86

Twenty-seven physicians were licensed by reciprocity and 4 physicians were licensed by endorsement from July 31 through December 10. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University School of Medicine.....	(1930)		Mass.
George Washington University School of Medicine.....	(1907)		D. C.,
(1920) Maryland			
Georgetown University School of Medicine.....	(1932)		Maryland
University of Illinois College of Medicine.....	(1913)		Iowa
State University of Iowa College of Medicine.....	(1902)		Iowa
University of Louisville School of Medicine.....	(1929)		Kentucky
Johns Hopkins Univ. School of Medicine.....	(1930, 2), (1932)		Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1914), (1928)		Maryland
Washington University School of Medicine.....	(1905), (1932), (1934) Missouri		
University of Nebraska College of Medicine.....	(1919)		Nebraska
Ohio State University College of Medicine.....	(1928)		Ohio
University of Oklahoma School of Medicine.....	(1935)		Oklahoma
University of Pennsylvania School of Medicine.....	(1928)		Penna.
University of Pittsburgh School of Medicine.....	(1932)		Penna.
Medical College of the State of South Carolina.....	(1923)		Ohio
Meharry Medical College.....	(1935)		Tennessee
University of Tennessee College of Medicine.....	(1929), (1932)		Tennessee
Medical College of Virginia.....	(1926)		W. Virginia
University of Virginia Department of Medicine.....	(1928)		New York,
(1935) Tennessee			

School	LICENSED BY ENDORSEMENT	Year Endorsement of
George Washington University School of Medicine....	(1917)	U. S. Navy
Georgetown University School of Medicine.....	(1935)	N. B. M. Ex.
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1932)	N. B. M. Ex.
University of Virginia Department of Medicine.....	(1932)	N. B. M. Ex.

New Mexico October Examination

Dr. Le Grand Ward, secretary, New Mexico State Board of Medical Examiners, reports the written examination held in Santa Fe, Oct. 12, 1936. The examination covered 11 subjects and included 75 questions. An average of 70 per cent was required to pass. Two candidates were examined, both of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
School of Medicine of the Division of the Biological Sciences	(1935)		86.1
Kansas City University of Physicians and Surgeons, Missouri	(1929)		77.9

Twenty-five physicians were licensed by endorsement from October 14 through December 20. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement of
University of Arkansas School of Medicine.....	(1927)	Arkansas,
(1932) Louisiana, N. B. M. Ex.		
College of Medical Evangelists.....	(1936)	N. B. M. Ex.
Northwestern University Medical School.....	(1933)	Iowa
University of Louisville School of Medicine.....	(1932)	Kentucky
Tulane University of Louisiana School of Medicine.....	(1928)	Louisiana
Harvard University Medical School.....	(1918) Ohio, (1934)	New York
Grand Rapids Medical College.....	(1902)	Colorado
Marion-Sims College of Medicine, Missouri.....	(1899)	Texas
St. Louis University School of Medicine.....	(1932)	Penna.
University Medical College of Kansas City, Mo.....	(1899, 2)	Missouri
University of Nebraska College of Medicine.....	(1929)	Nebraska
Long Island College of Medicine	(1934)	New York
University and Bellevue Hospital Medical College.....	(1903)	New York
University of Buffalo School of Medicine.....	(1935)	New York
University of Tennessee College of Medicine.....	(1925)	Oklahoma,
(1935) Tennessee		
Baylor University College of Medicine.....	(1932), (1933), (1935), (1936)	Texas
University of Texas School of Medicine.....	(1933)	Texas

Book Notices

Diseases of the Coronary Arteries and Cardiac Pain. Edited by Robert L. Levy, M.D., Professor of Clinical Medicine, College of Physicians and Surgeons, Columbia University, New York City. Cloth. Price, \$6. Pp. 445, with 97 illustrations. New York: Macmillan Company, 1936.

This is in reality a series of short reviews by noted American authorities on various aspects of this important medical problem. As the editor explains, the various chapters are wholly the views of the individual contributors, and consequently it is not surprising to find conflicting opinions expressed. This book is after all a survey of the present status of a field that is still new and constantly changing. Nevertheless, the careful student will find the book of inestimable value, since the survey of each particular phase is by a recognized authority in the field. That these reviews are admittedly biased when dealing with the borderlines of knowledge is a favorable rather than an unfavorable aspect of the book. Knowledge cannot be dissociated from personalities, and it is much more illuminating to know the point of view of an authority actively at work in a field than a more noncommittal essay by a reviewer of literature. In addition to the specialist, the medical student, the general practitioner and the internist will find themselves well repaid in reading the simple authoritative presentations of the so-called more practical sections of the book, although they may soon get lost in the intricacies of the technical arguments of certain of the "less practical" sections.

The introduction is written by A. E. Cohn in his usual delightful philosophic tone. The historical note written by J. B. Herrick presents the development of the subject and the American contributions clearly and with much too much modesty in regard to the historical importance of his own pioneer contributions in 1912 and later. J. T. Wearn, while perhaps unduly stressing direct communications between coronary arteries and heart cavities, gives a fair assay of the anatomy of the coronary system. C. J. Wiggers gives a detailed and intricate presentation of the physiology of the coronary circulation. It is a good summary of the recent work of his laboratory interpolated in the light of work done by other investigators. A simpler presentation or at least a summary would have enhanced this excellent chapter. The chapter on pharmacology by F. M. Smith gives a straightforward account of present knowledge. W. C. von Glahn, in comparison with other chapters, has dealt much too elementarily with the subject of the pathology of the coronary vessels. J. C. White's chapter on the pathways followed in the nerve plexuses by the pain fibers is excellent, and the physiology of cardiac pain written by C. J. Wiggers is a gem of original coordinated reviewing and description that will repay careful scrutiny. L. I. Dublin, in his chapter, has clearly pointed out the way in which statistics can be usefully applied to advance knowledge of disease. R. L. Levy in the next two chapters gives a straightforward clinical description of coronary diseases of the arteriosclerotic and syphilitic varieties. W. J. Kerr devotes a lengthy chapter of the more uncommon disturbances of the coronary arteries; particularly excellent is his summary of the history of periarthritis nodosa. P. D. White has presented an excellent clinical essay on cardiac pain, showing that the art of pure clinical description is not yet lost. The chapter on electrocardiography by F. N. Wilson is well presented and beautifully illustrated and, while biased in certain directions, merits careful perusal. The medical management of coronary diseases is dealt with as a practical problem by R. L. Levy in a brief, clear and authoritative fashion in two chapters. J. C. White presents the status of surgical methods for the relief of pain and stresses the value of paravertebral alcohol injection. The more recent surgical procedures still in their experimental stage are presented in the last two chapters by their proponents, H. L. Blumgart on complete thyroidectomy and C. S. Beck on the development of a new blood supply to the heart. Both these authors are cautious to point out that their procedures demand considerable further trial before they can be accepted as established methods of treatment.

This monograph of an advance in medical knowledge, primarily American in its source and development, is a meritorious undertaking, permitting the reader to obtain an inventory of what the advances actually have been.

Die Prophylaxe der Schlafstörung. Von Dr. med. habil. Paul Vogler, Dozent an der Universität Berlin. Boards. Price, 5.80 marks. Pp. 139. Leipzig: Georg Thieme, 1937.

The author tells us that he is not going to add another to the already great number of experimental studies on the problems of sleep. He would cultivate but a sector of this assemblage, and that relates itself to the clinical and prophylactic aspects of the situation, hydrotherapy being especially accented. In order however to afford a foundation, he reviews some of the underlying studies, thus offering a rapid summary of a few of the leading hypotheses and theories, chiefly of the physiologic schools. Thus there are brief references to the work of Hess, of Pavlov, of von Economo and of a few others of less significance. Almost apologetically, Freud's conceptions are given in smaller type, and at the end of four pages the astonishing statement is made that the freudian contributions offer no extensive study of sleep as a psychologic problem (p. 28). As only Freud's 1930 "Lectures" are quoted even in the bibliography, and Hoche's totally inadequate handling of the dream problem is frequently referred to, this show of ignorance is quite understandable on this, if not on deeper, grounds.

Dr. Vogler would posit four "fundamental" sleep factors. They are quite banal. They are sleep fatigue, the sleeping room, beds, and habits of sleep. To these sections on food supply are added light and air, equally quite superficial factors. The falling asleep, length of sleep, periodicity, and the sleep of childhood are briefly discussed and a short and inadequate note is presented on sleep walking and on the hallucinatory stages of the beginnings of sleep, also quite superficial. Thus, with reference to the latter, no mention is made in the text or the bibliography of Silberer's careful study of these hypnagogic phenomena.

Some trivial case histories are next reported and the text moves on to therapy. Goldscheider's dictum that hypnotics should be prescribed only when psychologic, physical and dietetic methods are not applicable is quoted with partial approval and emendation. Analgesic hypnotics are desirable in the presence of pain. There are three pages devoted to psychotherapy so general as to mean nothing. The final pages deal with various hydrotherapeutic procedures, chiefly the "pack," with a page or two on the continuous bath. A bibliography almost entirely of German writers closes this small brochure, which, though it has its spots of good grazing, is rather sparse feeding at best.

The Problem of Anxiety. By Sigmund Freud. Translated from the German by Henry Alden Bunker, M.D. Cloth. Price, \$2. Pp. 163. Albany: Psychoanalytic Quarterly Press, New York: W. W. Norton & Company, Inc., 1936.

This is an English translation of Professor Freud's "Hemmung, Symptom und Angst" written about ten years ago. It is one of the most important of Freud's recent contributions to psychology and is a corner-stone to contemporary psychoanalysis. Critics and commentators outside the field of analysis have for the most part been ignorant of the recent work of Freud and have praised or attacked psychoanalysis on the basis of his early work. Now there can be no excuse for overlooking the modern trends in analysis. The translator has kept to Freud's style of writing to a large degree.

Freud begins his book by differentiating inhibition from symptom. Inhibition is related to function but is not necessarily pathologic. It may be a symptom, but symptoms are always pathologic. Inhibitions are renunciations of functions that would give rise to anxiety if they were begun, as in hysteria. Inhibitions are functional limitations of the ego in order that there may be no indulgence in symbolic gratification of the repressed, thus avoiding conflict with the id, or in order to renounce gratification because of self punishment, thus avoiding conflict with the super ego.

Symptoms are substitute gratifications of what has been repressed by the ego at the command of the super ego. The ego is ordinarily quite powerless, but it does control the development of ideas and emotions into consciousness. In struggles of repression it can give a signal of distress. It can withdraw a charge from the preconscious representation of instinctive impulses and utilize such charges to produce "unpleasure" in the form of anxiety. Thus the ego is the real source of anxiety. The super ego is not the source of anxiety, since anxiety may occur before the super ego development when the

attempt to bind excessively powerful stimuli fails as a safety device. The appearance of anxiety in primal repression means that it is a biologic reaction conditioned on the first prototype of the physical manifestations of anxiety; i. e., those symptoms of dyspnea, tachycardia, and the like, appearing at the birth trauma.

Anxiety is something felt of an unpleasant character; it is accompanied by an efferent discharge in the vegetative sphere. It is these efferent discharges which reproduce the birth trauma. Birth is a physical danger with the psychologic component of basic or primal anxiety at separation from the mother. Anxiety then becomes an automatic phenomenon and a safety signal of psychic helplessness. Object loss is the precondition of anxiety. Danger of castration is danger of forever preventing reunion with the mother and identical with a second separation from her. Fear of castration at the hands of the rival father is internalized to fear of the super ego and dread of conscience or social anxiety. Thus the ego is the real source of anxiety. One must not restrict anxiety to castration fear but anxiety appears with danger of psychic helplessness in immaturity, with danger of loss of loved object in early childhood, castration fear in the phallic phase, and dread of the super ego in the latent period. In hysteria there is fear of loss of love, threat of castration in phobias and dread of the super ego in the compulsions.

Symptoms develop in order to avoid anxiety or, better said, anxiety causes symptom formation. The ego protects itself from outer danger by modifying the instinctual forces permanently because infantile objects of anxiety persist throughout life. There is a permanent reaction to danger. In the final analysis, according to present knowledge, the specific principles underlying the development of neurotic symptoms are three in number: 1. Biologic helplessness and dependence of the human infant thrust unfinished into a dangerous environment necessitating protection, care and great love. 2. Phylogenetic early demands of sexuality on the child with abrupt appearance of a latent period at the age of 5. The early demands on the child and his inability to compete have the same effect on his ego as premature contact with the world at his birth. 3. Psychologic lack of adequate differentiation of ego from id within the psychic apparatus. The dangers of reality force the ego to treat its instinctual impulses as dangers. In combating the id which is intimately connected with the ego, the ego must put restrictions or inhibitions before itself, tolerate symptoms and suffer neurotically.

This bare sketch of Freud's work does not do justice to his masterful work. The book should be thoroughly studied in order to grasp Freud's insight into human psychology and for the purpose of really understanding an important part of modern psychoanalysis.

Behandlung der Verletzungen und Eiterungen an Fingern und Hand. Von Professor Dr. M. zur Verth, Privatdozent der Universität Hamburg. Second edition. Paper. Price, 8.70 marks. Pp. 164, with 59 illustrations. Berlin: Julius Springer, 1936.

This little volume is a revision of the author's monographs "Introduction to the Treatment of Injuries of the Fingers and Hand" and "The Panaritium," combined under one title. Thirty pages are devoted to various types of compound injuries, two to tendon injuries, one to nerve injuries and forty-eight to fractures and dislocations of the phalanges and the metacarpal and carpal bones. The remainder of the volume, approximately one half, is devoted to infections of the fingers and hand. The work is concise, well written and well illustrated, particularly in its excellent reproductions of x-ray films. The author is one of the few continental surgeons who have carefully studied Kanavel's contributions on infections of the hand and attempted to present his conclusions. His presentation is not always quite in accord with what are understood to be Kanavel's conceptions. For example, in illustrating the incisions for draining an infection involving flexor tendon sheaths of the thumb and little finger and the radial and ulnar bursae (p. 136) the author indicates short bilateral incisions over the volar surface of the little finger instead of a single long incision on the ulnar side of the finger, and a long incision directly over the muscular mass of the thenar eminence. The latter incision, if deep enough to reach the sheath of the long flexor tendon of the thumb, would surely result in division of the important motor

nerve to the thenar muscles. Although one might be critical of a number of more or less important details, the book as a whole deserves praise and commendation. It exemplifies the effort of a thoughtful and industrious surgeon to improve the care of common and important injuries and infections that often result in serious loss of function.

Essentials of Oral Surgery. By Vilray Papin Blair, A.M., M.D., F.A.C.S., Professor of Clinical Surgery in the School of Medicine, Washington University, St. Louis, and Robert Henry Ivy, M.D., D.D.S., F.A.C.S., Professor of Maxillo-Facial Surgery in the Graduate School of Medicine, University of Pennsylvania, Philadelphia. With the collaboration of James Barrett Brown, M.D., F.A.C.S., Associate Professor of Clinical Surgery in the School of Medicine, Washington University, St. Louis. Second edition. Cloth. Price, \$6.50. Pp. 606, with 445 illustrations. St. Louis: C. V. Mosby Company, 1936.

Since the publication of the first edition in 1923, this has been recognized as a valuable text and reference book for students and practitioners. The subject matter is well arranged and the topics are adequately discussed. The authors have successfully avoided one tendency that is common in most textbooks on oral surgery: they have refrained from placing undue emphasis on rare, unusual diseases and treatment and have considered the relative frequency with which diseases occur and gaged their presentation from that point of view. As a result, the reader is given a better understanding of the diseases most commonly met. The chapter on anesthesia is most complete. Indications and contraindications for administering both local and general anesthetics are considered. The authors describe a definite technic for introducing the anesthetic, which, if followed carefully, will bring the desired results. Accidents that may occur and the way to take care of the resulting situations are discussed frankly. The paragraph dealing with ethyl chloride anesthesia could probably be eliminated. After describing its use in several regions, the authors state that "it is not successfully applied to these regions." The chapter on surgical preparation of the mouth for artificial dentures by Dr. Kazanjian is a valuable addition to the book. There is little doubt of the great value of Dr. Kazanjian's contributions to this phase of oral surgery. However, his description of the treatment of abnormally prominent alveolar ridges of the upper jaws is rather more complicated than is necessary. Suturing through the skin and then placing dressings on the face appear to be too involved and dangerous, especially since there is a more simple method that is effective.

Practice of Pediatrics. By Various Authors. Edited by Joseph Brennemann, Ph.B., M.D., Chief of Staff, Children's Memorial Hospital, Chicago, Ill. In four volumes and index volume. Fabrikoid. Loose-leaf. Price, \$63 per set. Various pagination, with illustrations. Hagerstown, Maryland: W. F. Prior Company, Inc., 1937.

The systems of medicine published by the Prior Company already include Tice's Practice of Medicine, Lewis's Practice of Surgery, the Practice of Physical Therapy, Gynecology and Obstetrics, and now comes the Practice of Pediatrics, edited by Dr. Joseph Brennemann, chief of staff of the Children's Memorial Hospital, Chicago. In its make-up, printing, loose-leaf form and other significant typographic aspects, Brennemann's Pediatrics resembles the previously published systems. It has a total of more than a hundred contributors. It differs, of course, from the several previously published systems of pediatrics in being the first in a loose-leaf form. It is planned particularly for the general practitioner and the student rather than for the specialist. It gives perhaps more attention to treatment than has been given by previous systems of pediatrics. The hundred contributors include numbers of American pediatricians, immunologists, psychiatrists, hygienists and other specialists who have been interested in pediatrics.

The history of pediatrics is provided by Dr. Isaac Abt, who prepared a similar contribution, including a history of medical encyclopedias for his own system of pediatrics. In this history pediatrics is considered nation by nation, in the United States, state by state. It is interesting to observe which of the living pediatricians the author has selected for special comment.

The volumes then proceed with an introduction to pediatrics by Blackfan, after which comes the section on heredity and environment, by H. S. Jennings.

It is not possible in the scope of a review such as this to make separate comment on all the articles, and it would be invidious to select any one as deserving of special comment.

The illustrations, some in color, have been wisely chosen and well distributed throughout the work. The volumes following the first, which is of a general character, proceed to discuss the infectious diseases, the diseases of special systems and portions of the human body. It concludes with the nervous system, disorders of speech, and such special topics as orthopedics, arthritis, the appendages, the skin and burns.

The work is well edited. It is easily readable and most easy of reference. Any practitioner requiring a system of pediatrics which is bound to yield valuable dividends in the form of accurate information when needed will find this "Practice of Pediatrics" an excellent investment.

Williams Obstetrics: A Textbook for the Use of Students and Practitioners. By Henricus J. Stander, M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Cornell University Medical College. Seventh edition: A revision and enlargement of the text originally written by J. Whitridge Williams. Cloth. Price, \$10. Pp. 1,269, with 747 illustrations. New York & London: D. Appleton-Century Company, Inc., 1936.

On October 21, 1931, a year after he had completed the revised sixth edition of his textbook, Dr. Williams died at the age of 65. The book had made for itself a definite place in the literature of medicine. It had been widely recommended by teachers in our best medical schools and it has seemed desirable that the work be continued under new editorship. Dr. Stander is professor of obstetrics and gynecology in Cornell University Medical College. He has been aided in the revision of the work by many former pupils of Dr. Williams as well as by other obstetricians, who provided new data and new illustrations. The author points out that in the present edition certain sections are being rewritten, although attempts were made to retain as much of Dr. Williams' last edition as consistent in new developments of obstetrics. Three new chapters have been added, one dealing with hormones as related to pregnancy and the puerperium, one on urinary complications (particularly pyelitis), and the third on anesthesia and analgesia. Many of the illustrations are new and many of the older ones have been retouched, this work being in charge of Miss Elizabeth Broedel under the guidance of her distinguished father, Max Broedel, the well known artist of the Johns Hopkins Medical School. As has already been said, it is well to have this excellent textbook kept up to date and made available for those who first learned their obstetrics from its pages and who still feel that it represents the ideal work for the purpose.

Historical Notes on Psychiatry (Early Times—End of 16th Century). By J. R. Whitwell, M.B., Hon. Lib., Royal Medico-Psychological Association. Cloth. Price, 10s. 6d. Pp. 252. London: H. K. Lewis & Co., Ltd., 1936.

This volume endeavors to trace the process of evolution through which psychiatry passed from early times to the end of the sixteenth century. It includes first the ancient writers, then quotations from the Bible, the Talmud and the Koran, next cases from the classics, the philosophers and the classical medical writers, and finally translations and extracts from great numbers of writers of the earlier periods. As a source book in the early history of psychiatry it represents a fine reference. For the psychiatrist particularly it will offer an interesting exercise in modern diagnosis on the basis of ancient descriptions.

Into This Universe: The Story of Human Birth. By Alan Frank Guttmacher, Associate in Obstetrics, Johns Hopkins University. Cloth. Price, \$2.75. Pp. 366, with 15 illustrations. New York: Viking Press, 1937.

The figurative title to this work is supplemented by the more definite statement "The Story of Human Birth." The book is based largely on questions that have been raised by patients, students and laymen who wanted to know not only the bare facts of childbirth but also the relationship of childbirth to many other activities of life and living. Dr. Guttmacher's previous work, entitled "Life in the Making," was an attractive volume which similarly answered many questions. His literary style is pleasant; his ability to turn exposition into narrative, extraordinarily competent. He has collected a vast amount of interesting material and his chapters on maternal impressions, spontaneous birth, cesarean section and similar subjects will be informative not only to the public but also to many physicians. An unusual feature is the musical scoring of the sounds of pain in labor as contrasted with the expression of pain under ordinary circumstances. The volume is an

extraordinary collection of facts related to childbirth from every point of view. It is supplemented by a well chosen bibliography and a fine index.

On the State of the Public Health: Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1935. Paper. Price, 3s. 6d. Pp. 238. London: His Majesty's Stationery Office, 1936.

In this annual report, Sir Arthur MacNalty makes available the vital statistics of Great Britain for the year 1935. The report is of special interest because it is concerned not only with the records of population and infectious disease but also with maternity and child welfare, the insurance medical service, the relationship of food to health and disease, and, finally, medical research. In the report on the insurance medical service it is pointed out that 8,000,000 insured persons seek medical attendance and that over 50,000,000 attendances are given each year by the doctors. During 1935 there were 157 cases of complaints regarding the adequacy of the service in that year. In 1935 the number of insured persons was 15,869,000 and the number of insured practitioners was 16,600. The total cost, exclusive of administration, was £9,449,900. The authorities are somewhat disturbed over the gradual increase in the prescribing of drugs, which apparently is unexplainable. The authorities feel that a large percentage of the present physicking of the population is wholly unnecessary and that the medical profession of Great Britain is being careless in over-prescribing. It asks the insurance practitioners to give due thought to their responsibility in this matter.

Physiology and Anatomy. By Esther M. Grelshelmer, M.A., Ph.D., M.D., Professor of Physiology, Woman's Medical College of Pennsylvania. Philadelphia. Lippincott's Nursing Manuals. Third edition. Cloth. Price, \$3. Pp. 706, with 401 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1936.

This book has gone into the third edition since July 1932, and each of the previous editions has been reviewed in THE JOURNAL. In this edition, recent information concerning vitamins and internal secretions has been added, and the chapters on the nervous system and the special senses have been reorganized. The general plan of the book, however, is the same as in previous editions; that is, the author endeavors to provide a textbook setting forth in simple language and in many carefully selected pictures the fundamental knowledge of physiology and anatomy. The book is intended primarily for nurses and other nonmedical students. The discussions must necessarily be brief since these two large subjects are covered within the 706 pages of a rather small book, including the pages given over to the glossary in the back and the index. The illustrations have been well planned. In fact, the whole book seems well adapted to the purpose as expressed by the author.

Clinical Psychology: A Handbook of Children's Behavior Problems. By C. M. Louttit, Director, Indiana University Psychological Clinics. With a foreword by L. T. Meigs, M.D., Pediatrician-in-charge, James Whitcomb Riley Hospital for Children. Cloth. Price, \$3.50. Pp. 637, with 21 illustrations. New York and London: Harper & Brothers Publishers, 1936.

There are certain phases of clinical psychology that are particularly concerned with medical problems; for example, those associated with intelligence and special abilities, behavior problems in children, and psychologic problems connected with various organic disabilities, such as speech, blindness, crippling and hearing. The author of this volume has had clinical experience in the University of Indiana at Bloomington and at the James Whitcomb Riley Hospital for Children in Indianapolis. His book reflects that experience as well as wide knowledge of the available literature in his field. By means of well selected case reports he reflects adequately the type of work that confronts the clinical psychologist today. Some of his records in the field of juvenile delinquency are particularly illuminating. The book is an excellent reference work in its field and should be helpful to all who are especially interested in the problems that it concerns.

Yubileyny sbornik nauchnykh trudov Omskogo Meditsinskogo Instituta, 1920-1935. Pod otvetstvennoy redaktsiyei direktora Meditsinskogo Instituta I. I. Sysoeva. [Jubilee Collection of Scientific Works of Omsk Medical Institute, 1920-1935.] Paper. Gratis. Pp. 200, with illustrations. Omsk: The Institute, 1935.

This is a collection of papers published by the institute on the occasion of the fifteenth anniversary of its establishment.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Optometry Practice Acts: Corporate Practice of Optometry Through Licensed Optometrists Lawful in Maryland.—The Castelberg Jewelry Corporation maintained stores for the sale of jewelry, silverware, optical goods, ornaments and other wares of the same general character. In connection therewith, it operated departments for the sale of eyeglasses. To stimulate that part of its business, it furnished optometrical services, employing registered optometrists and supplying them with offices and with instruments and mechanical appliances. The Maryland Association of Optometrists, the Maryland State Board of Examiners in Optometry and the members of that board as individuals brought suit against the corporation to enjoin it from engaging in the practice of optometry in the state. The trial court dismissed the case, and the plaintiffs appealed to the Court of Appeals of Maryland.

It may well be doubted, said the court, whether the board of examiners, as such, has power to institute the present action. Its duties do not include that of enforcing the provisions of the optometry act by civil litigation. Too, the Maryland Association of Optometrists has no property interest affected by the defendant's acts, and its right to sue is not apparent. With respect to the members of the examining board, suing as individuals, there is authority of some persuasive force which sustains their right to equitable relief against illegal competition. The right of any of the plaintiffs to maintain the present action, however, was not determined, because the defendant did not raise the point. The important question, said the Court of Appeals, is whether one who offers to furnish, or does actually furnish through the agency of a registered optometrist, such service as may be required to determine whether persons applying therefor need eyeglasses, and if so what kind of eyeglasses they need, is himself practicing optometry within the meaning of the optometry practice act. The purpose of the act, said the court, is not to protect the financial interests of persons engaged in the practice of optometry; it is to protect the public against injury or harm which might result if ignorant, unskilful or incompetent persons are permitted to offer their services as optometrists indiscriminately. Optometry is essentially a mechanical art which requires skill and manual dexterity. It requires a knowledge of the use of certain mechanical instruments and appliances designed to measure and record the errors and deviations from the normal which may be found in the human eye. It does not require the knowledge and the learning appropriate to professions or callings which deal with causes and conduct rather than with conditions and effects. It is, continued the court, in its nature empirical rather than learned. While literally the word "profession" may be applied to any calling requiring special knowledge of some branch of science or learning, historically and ordinarily it is limited to such vocations as the law, the ministry, medicine, military science, engineering, and the like. Its use in connection with the practice of optometry is merely illustrative of a euphemistic trend apparent in recent years of converting age-old and common callings into "something new and strange," not by changing their characteristics but by describing them in more dignified and sonorous terms.

The provisions of the Maryland optometry practice act sufficiently manifest an intention that no one shall be permitted physically and manually to practice optometry who does not hold the registration certificate issued by the board as evidence of the statutory qualification. The adequate protection of the public health requires no more than that. Beyond that the legislature did not go. The contention is legally unsound that optometry is a learned profession and that a sound public policy denies the right to any one to exploit and commercialize it by furnishing the service incident to the business through the agency of others. There is no public policy which forbids the commercialization of optometry. The business of optometry is that of testing eyesight and selling glasses, and whatever the selling part of it may be called, it is commercial in its nature

and to prohibit its commercialization would be to prohibit the business altogether.

If, the court said, support were needed for the conclusion that the optometry practice act does not prohibit corporations from supplying optometrical services through licensed optometrists, it would be found in the long continued contemporaneous construction given the act by the administrative agencies of the state and by those engaged in the business. For twenty-one years the usage of which the plaintiffs now complain has been widespread and, other than an effort to obtain the enactment of legislation in 1935, no attempt appears to have been made to prevent it. While that fact cannot be accepted, the court said, as conclusive or controlling, nevertheless if the act were open to construction, it would be entitled to serious consideration. The decree appealed from was affirmed.—*Dvorine v. Castelberg Jewelry Corporation (Md.)*, 185 A. 562.

Charitable Hospitals: Liability for Negligence of Nurses.—An operation was performed on the plaintiff's wife in the defendant hospital. Following the operation, an intern ordered the injection of a saline solution. Owing to the negligence of a nurse, a boric acid solution was injected instead of the saline solution, resulting in the death of the patient. The plaintiff thereupon sued the hospital. The trial court gave judgment for the plaintiff, and the court of appeals reversed that judgment and remanded the cause. On the motion of both parties, the case was certified to the Supreme Court of Ohio.

There was ample testimony, said the Supreme Court, that the hospital was operated as a public charity. It was therefore not liable for injury to a patient resulting from the negligence of a nurse, unless it failed to exercise due care in the selection or retention of the nurse who caused the injury. The burden of showing such lack of care rested on the plaintiff. The record in the present case showed that the nurses in charge of the patient were graduate nurses, with long training and experience. The plaintiff presented no evidence that the hospital authorities had been lacking in care in selecting or retaining them and certainly, said the court, the hospital authorities should not be charged with lack of due care when the incompetence of the nurse appeared for the first time after the operation. In view of these circumstances, the court concluded, the court of appeals should not have remanded the case for a new trial but should have rendered final judgment for the hospital. The judgment of the court of appeals in remanding the case was therefore reversed and judgment rendered for the hospital.—*Kovar v. Lakeside Hospital (Ohio)*, 2 N. E. (2d) 857.

Malpractice: Refusal of Physician to Accept Patient.—The plaintiff was an employee of the Milledgeville State Hospital, an institution owned and operated by the state of Georgia. The defendant, a physician, was the superintendent of the hospital. The report of the case does not disclose the nature of the plaintiff's illness but apparently she applied to the defendant for relief and he refused to treat her. Thereafter she instituted a malpractice suit against him. The trial court dismissed the action, and the plaintiff sought a reversal in the court of appeals of Georgia, division 1.

The plaintiff's petition, said the appellate court, failed to show that the relationship of physician and patient existed between the plaintiff and the defendant. On the contrary, it repeatedly alleged the refusal of the defendant to do anything for her. Merely because the defendant was a physician and knew of the condition of the plaintiff would not devolve on him the duty of rendering medical care to her, even though the plaintiff applied to him for treatment. There is no rule of law that requires a physician to undertake the treatment of every patient who applies to him. "An act requiring a license before a person practices medicine is essentially a preventive, not a compulsory measure, and one who has secured a license according to statute is not liable for damages alleged to result from the refusal to take a case." 21 R. C. L. 379; *Hurley v. Eddingfield*, 156 Ind. 416, 59 N. E. 1058, 53 L. R. A. 135, 83 Am. St. Rep. 198.

Nor did the plaintiff automatically become a patient of the defendant because of their respective relationships to the hospital. While it is a general rule that "the physicians and surgeons of a hospital, public or private, enter into the relation of physician and patient with every patient brought into the

hospital as soon as he is brought in," 21 R. C. L. 376, there was no evidence that the plaintiff was a patient in the hospital. The defendant was required "to reside constantly on the premises, and devote his professional services exclusively to the use of the Hospital. . . . To discharge all duties in any way connected with the restoration to health or sanity of the inmates." The statute relating to the hospital provided that "lunatics, epileptics, idiots, and demented inebriates, may become inmates of the hospital and shall be admitted to, and discharged from, the Hospital under such rules and regulations as the Board of Control shall prescribe." The petition filed by the plaintiff, however, failed to allege that she came within any of the enumerated classes.

The trial court did not err, in the opinion of the appellate court, in dismissing the petition, and the judgment of the lower court was affirmed.—*Butterworth v. Swint (Ga.)*, 186 S. E. 770.

Charitable Hospitals: Liability to Visitor; Indemnity Insurance as Affecting Liability.—The plaintiff's husband was a pay patient in the defendant hospital, an institution incorporated and operated for charitable purposes. On a visit to her husband, the plaintiff slipped on a floor and fractured her left wrist and hip and thereafter sued the hospital for damages. The hospital interposed as a defense, among others, the fact that it was a charitable institution. Admitting the status of the hospital and that its trust funds could not be used to satisfy any damages that might be awarded, the plaintiff alleged in her pleadings that the hospital had taken out a liability insurance policy, that the recovery of damages to which plaintiff was entitled would be paid by the insurance company, and that therefore none of the trust funds of the hospital would be dissipated. The defendant demurred to this pleading. The trial court ruled that the existence of the insurance policy did not render the hospital liable in any case in which it was not otherwise liable for its negligence and that, since the plaintiff had admitted that the trust funds of the hospital could not be used to pay damages, the defendant's demurrer would have to be sustained. The plaintiff thereupon appealed to the Supreme Court of Tennessee.

The fact that the defendant carried a liability insurance policy, said the Supreme Court, gave the plaintiff no additional rights and imposed no additional obligations on the defendant. While the record showed that the plaintiff's husband was a pay patient in the hospital, the court was unable to see that that fact had any bearing on the liability, if any, of the hospital to the plaintiff, for the injuries complained of did not arise out of any treatment to the patient. Furthermore, the court said, the exemption extended to a charitable institution for a tort is not changed by reason of the fact that the patient pays for the services rendered. The determinative question in this case, the court continued, is whether the defendant was wholly exempt from liability, irrespective of the fact that the plaintiff was not a beneficiary of the charity. The rule of exemption of charitable institutions, said the court, is by no means of universal application. In Minnesota it is held that charitable institutions are liable for their negligence as are other institutions. *Geiger v. Simpson Methodist-Episcopal Church*, 174 Minn. 389, 219 N. W. 463. In Tennessee, a broad rule of nonliability was laid down in *Abston v. Waldon Academy*, 118 Tenn. 24, 102 S. W. 351, but that decision was later criticized in *Love v. Nashville Agricultural and Normal Institute*, 146 Tenn. 550, 243 S. W. 304, in which case recovery was permitted against a charitable institution for creating a nuisance, the pollution of a spring. Furthermore, in *Gamble v. Vanderbilt University*, 138 Tenn. 616, 200 S. W. 510, the court recognized the university's liability for a tort committed by one of its servants. In the present case, therefore, the court failed to see the justice in exempting charitable institutions from liability for injuries sustained by one who was not a beneficiary of the trust. Taking this view of the matter, the court said, the defendant's plea of exemption on the ground that it was a charitable institution was not a sufficient defense and the trial court should have so held and should have proceeded to try the case on its merits. The judgment of the trial court was therefore reversed and the case remanded for trial.—*McLeod v. St. Thomas Hospital (Tenn.)*, 95 S. W. (2d) 917.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Association of Industrial Physicians and Surgeons, Detroit, May 6-7. Dr. Volney S. Cheney, Union Stock Yards, Chicago, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Dickson, 210 Longwood Ave., Boston, Secretary.
- Association, Sky Top, Pa., June 3-5. Dr. Fred bestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Pediatric Society, Hot Springs, Va., April 29-May 1. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., Secretary.
- American Society of Clinical Pathology, Atlantic City, N. J., June 2-6. Dr. A. S. Giordano, 531 North 10th St., Philadelphia, Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 377 West 11th St., New York, Secretary.
- American Society of Tropical Medicine and Hygiene, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunte, Washington, D. C., Secretary.
- Associated States and Canada, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-5. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia, Medical Society, May 19-20. Dr. C. B. Conklin, 1718 M St. N.W., Washington, D. C., Secretary.
- Georgia, Medical Association of, May 19-20. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Hawaii Territorial Medical Assoc., May 19-20. Dr. Douglas B. Bell, Queen's Hospital, Honolulu, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Louisiana State Medical Society, Monroe, April 26-28. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.
- Maryland, Medical and Chirurgical Faculty of, Baltimore, April 27-28. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 707 Germantown Ave., Philadelphia, Secretary.
- Minnesota State Medical Society, St. Paul, May 3-5. Dr. E. A. Meyerding, 11 West 8th St., St. Paul, Secretary.
- Mississippi State Medical Society, Jackson, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Jackson, Secretary.
- Missouri State Medical Society, St. Louis, May 10-12. Dr. E. J. Goodwin, 634 North 1st St., St. Louis, Secretary.
- National Tuberculosis Association, Atlantic City, N. J., June 3. Dr. Charles J. Hatfield, 7th St., Philadelphia, Secretary.
- Nebraska State Medical Association, Omaha, May 10-13. Dr. R. L. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey, Medical Society of, Atlantic City, April 27-29. Dr. J. B. Morrison, 66 Milford Ave., Newark, Secretary.
- New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Coburn, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
North Carolina, Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
Ohio State Medical Association, Dayton, April 28-29. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.
Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 1. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.
South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

53: 673-932 (March) 1937

- *Stages, Prognosis and Duration of Glomerular Nephritis in Childhood. A. W. Snoke, San Francisco.—p. 673.
- Insensible Perspiration in Children: III. Statistical Correlation of Insensible Perspiration and Basal Metabolism. G. J. Ginandes and Anne Topper, New York.—p. 705.
- Variable Course of Pertussis: Does *Haemophilus Pertussis* Undenatured Bacterial Antigen Alter It? J. J. Miller Jr. and Charlotte Singer-Brooks, San Francisco.—p. 720.
- Physical Status of 219 Pueblo Indian Children. Ethel C. Dunham, Washington, D. C.; Sophie D. Aherle, Albuquerque, N. M.; Lucile Farquhar and M. D'Amico, New Haven, Conn.—p. 739.
- *Use of Convalescent Serum in Prevention of Chickenpox. J. M. Lewis, L. H. Barenberg and G. Grossman, New York.—p. 750.
- Comparison of Antirachitic Effects on Human Beings of Vitamin D from Different Sources. T. G. H. Drake, Toronto.—p. 754.
- *Prophylaxis of Whooping Cough. F. M. Meader, Detroit.—p. 760.
- Human Milk: Its Lysozyme Content and Bacterial Count. M. L. Blatt and Helen Kessler, Chicago.—p. 768.
- Iron versus Iron and Copper in Treatment of Anemia in Infants. C. A. Elvehjem, Dorothy Duckles and Dorothy Reed Mendenhall, Madison, Wis.—p. 785.
- Vaginitis of Children: Review of Literature. R. A. Benson and A. Steer, New York.—p. 806.

Prognosis of Glomerular Nephritis in Childhood.—Snoke points out that the existence and the persistence of latent glomerular nephritis in childhood, as in adult life, usually escape detection when quantitative examination of properly concentrated urine is not made. Glomerular nephritis commonly, if not invariably, enters a latent stage after the initial stage. The initial stage often is overlooked when gross hematuria or fulminating symptoms are absent. Latent glomerular nephritis may terminate in healing or may pass on to the degenerative stage or to the terminal stage, and its duration is enormously variable. The later stages frequently do not occur till some period of adult life. Between 1920 and 1936, 154 children with glomerular nephritis have been followed: fifty-seven of these have now recovered, thirty-three are dead and sixty-four still have active nephritis, thirty-five of whom have been in that stage for more than two years and six for more than ten years. With only two exceptions, both slightly doubtful, no instance of nephritis lasting more than two years has ended in recovery. An eventual fatality rate of 40 per cent for glomerular nephritis is a conservative estimate. The prognosis for the successive stages of glomerular nephritis—active, latent, degenerative and terminal—is progressively worse, the last named being uniformly fatal. The age of onset (or detection) has no significant relation to prognosis. Hypertension and increased amounts of blood urea have similar significance and tend to parallel each other; in the initial stage they have no relation to prognosis, but when they appear in the

later stages they supply the first indications that the patient is entering the terminal stage of renal insufficiency. The value for blood urea does not become abnormally high as a general rule until 50 per cent or more of the renal tissue fails to function. Glomerular nephritis cannot be proved to be healed until repeated quantitative examinations of concentrated urine over a period of at least one year have been normal.

Convalescent Serum in Prevention of Chickenpox.—Lewis and his associates inoculated 10 cc. of pooled convalescent serum into twenty-three children exposed to chickenpox from one to three days previously. Nineteen children who had been exposed to chickenpox in the same wards received no inoculations and served as controls. Twenty-one children, or 91 per cent, of the treated group contracted chickenpox; eighteen children, or 95 per cent, in the untreated group had the disease. It was somewhat more severe in the children receiving convalescent serum than in those not receiving serum.

Prophylaxis of Whooping Cough.—Meader treated 115 children from 1 to 6 years of age with 10 cc. of blood serum from persons who had recovered from whooping cough. Whooping cough developed in thirty-seven, or 32.2 per cent. Whooping cough developed in eight children on the first day after the serum was given. The record in these cases should not discredit the value of the serum. The fact that the disease developed during the first six days after administration of the serum should not be counted against the serum. Twenty-one patients should therefore be excluded. Failure should be charged against the serum in only sixteen of the thirty-seven cases. For controls, 183 children of the same ages were used. These children were exposed to whooping cough but were not given blood serum from persons who had recovered from this disease. Whooping cough developed in 121, or 66 per cent. When comparable groups of treated and untreated exposed children are compared, about 72 per cent of those treated with 10 cc. of pooled convalescent serum will be protected from the disease. The incubation period is so long that while one of two children in a given family who receive the serum prophylactically at a fortuitous moment will be protected, another receiving the serum in the latter part of the incubation period will contract whooping cough, apparently having obtained no protection. The most favorable results are obtained with children in the first three years of life. This serum will therefore probably never be as spectacular in its effects as similar convalescent serum is for scarlet fever, for which a short incubation period prevails.

American J. Obstetrics and Gynecology, St. Louis

33: 183-364 (Feb.) 1937

- Undergraduate Teaching of Gynecology in North America: Presidential Address. L. E. Phaneuf, Boston.—p. 183.
- General Allergy and Metrallergy. J. R. Goodall and R. M. H. Power, Montreal.—p. 194.
- Vaginal Hysterectomy in Prolapsus Uteri. A. D. Campbell, Montreal.—p. 209.
- Bilateral Transplantation of Ureters of Female. V. S. Counsellor, Rochester, Minn.—p. 234.
- Fibroma of Ovary with Ascites and Hydrothorax: Report of Seven Cases. J. V. Meigs and J. W. Cass, Boston.—p. 249.
- *Results of Induction of Labor in 750 Cases from Private Practice: Comparison with 750 Contemporary Consecutive Noninduced Cases. A. Mathieu and A. Holman, Portland, Ore.—p. 268.
- Placental Variation: Analytic Determination of Its Clinical Importance. L. A. Calkins, Kansas City, Kan.—p. 280.
- Results with Intra-Uterine Stem Pessary. W. H. Weir, Cleveland.—p. 291.
- Recent Experience with New Classification of Pregnancy Complicated by Hypertension and Albuminuria. F. S. Kellogg, J. A. Smith, H. M. Teel and D. E. Reid, Boston.—p. 300.
- Forceps Technic in Occipitoposterior Positions. A. K. Paine, Boston.—p. 313.
- Behavior of Intravenously Injected Bilirubin in New-Born Infants. Hazel Lin, Peiping, China, and N. J. Eastman, Baltimore.—p. 317.
- Abnormal Bandl Ring. G. F. Pendleton, Kansas City, Mo.—p. 324.
- Essential Dysmenorrhea and Allergy. O. H. Schwarz and D. R. Smith, St. Louis.—p. 331.
- The Forgotten Man in Obstetrics. P. Findley, Omaha.—p. 336.
- Analgesia in Labor Considered from Standpoints of Medicine and Psychology. Gertrude Nielsen, Oklahoma City.—p. 342.
- Chromic Acid for Treatment of Chronic Infective Endocervicitis. J. W. Ross, Washington, D. C.—p. 348.

Results of Induction of Labor in Cases from Private Practice.—After analyzing 750 cases of induced labor from private practice and comparing them with a consecutive, contemporary series of cases in which labor was not induced,

Mathieu and Holman reached the conclusion that the maternal and fetal morbidity and mortality were not increased by induction. Induction of labor was successful in 98 per cent of the cases. Induction was apparently not responsible for the occurrence of any pathologic condition during labor, delivery or the puerperium. In the last 550 inductions quinine was not used, and the results were apparently not affected by its omission. In the last 351 cases, if labor did not start after three or four injections of 3 minims (0.2 cc.) of solution of posterior pituitary, the membranes were artificially ruptured during induction if there were no contraindications and if they had not already ruptured. In the last 114 cases castor oil was omitted and pentobarbital was given before the hypodermic injections were started. Omission of castor oil in no way affected the success of induction. Pentobarbital has been advantageous in keeping the patient tranquil and free from pain, has not interfered with the success of the induction and has not affected the vital statistics unfavorably. In the 750 cases of induced labor there was no instance of abruptio placentae or of fetal death due to cerebral injury or birth injury. There was one instance of prolapsed cord, in a patient whose membranes ruptured spontaneously.

33: 365-546 (March) 1937. Partial Index

- Profan and Estrin in Serum and Urine of Diabetic and Nondiabetic Women During Pregnancy, with Especial Reference to Late Pregnancy Toxemia. O. W. Smith and G. Van S. Smith, Brookline, Mass., with cooperation of E. P. Joslin and Priscilla White, Boston.—p. 365.
- *Diabetes Complicating Pregnancy. Priscilla White, Boston.—p. 380.
- Histologic Method for Early Diagnosis of Pregnancy. B. G. Smith and E. K. Brunner, New York.—p. 404.
- New Operation for Cystocele. G. D. Royston and D. K. Rose, St. Louis.—p. 421.
- *Early Diagnosis of Abruptio Placentae and Its Treatment with Wheat Germ Oil. E. Shute, London, Ont.—p. 429.
- Blood Phosphatase in Pregnancy. T. Meranze, D. R. Meranze and M. M. Rothman, Philadelphia.—p. 444.
- Use of the Female Bitterling as Test for Male Hormone. I. S. Kleiner, A. I. Weisman and D. I. Mishkind, New York.—p. 458.
- Effect of Moccasin Snake Venom (Ancistrodon Piscivorus) on Parturient and Puerperal Bleeding. E. J. Davin, F. Spielman and J. A. Rosen, New York.—p. 463.
- Additional Data on Treatment of Uterine Bleeding with Snake Venom. M. A. Goldberger and S. M. Peck, New York.—p. 469.
- Chorionepithelioma, with Especial Reference to Its Relative Frequency. E. A. Schumann and A. W. Voegelien, Philadelphia.—p. 473.
- Control of Puerperal Sepsis in Hospital Practice. D. A. D'Esopo, New York.—p. 479.
- Secondary Perineorrhaphy at Subsequent Delivery. H. V. Gayden, Nashville, Tenn., and E. D. Plass, Iowa City.—p. 484.
- Congenital Hydrops Fetalis (Schridde Type). H. A. Peck and J. J. Clemmer Jr., Glens Falls, N. Y.—p. 488.
- Radium Therapy in Granulosa Cell Tumor of Ovary. W. E. Studdiford, New York.—p. 495.
- Placenta Accreta Found at Cesarean Section. A. Mathieu, Portland, Ore.—p. 498.
- Ruptured Uterus: Peritonitis, Operation and Recovery. R. L. Barrett, New York.—p. 509.
- Accidental Rupture and Successful Ligation of Umbilical Artery Before Onset of Labor. E. W. Page, Los Angeles.—p. 518.
- Pregnancy and Nephrectomy. W. G. Cummings, Winnetka, Ill.—p. 526.
- Velamentous Insertion of Umbilical Cord. A. J. Whitehouse, Lexington, Ky.—p. 527.

Diabetes Complicating Pregnancy.—White believes that the incidence of spontaneous abortion may be reduced by more accurate control of diabetes. Toxemia and eclampsia occur with great frequency, particularly in the youthful type of diabetes. Related to these complications is the common complication of the diabetic pregnancy, a giant fetus. Deaths in the neonatal period are largely due to congenital defects which are beyond therapeutic control, to hypoglycemia which can be corrected and to asphyxia, to which the infant of the diabetic patient is undoubtedly more liable than that of the nondiabetic, because of the greater danger of toxicemic and diabetic acidosis. The treatment of the diabetic patient during pregnancy must be individualized. The diabetic woman should not have numerous pregnancies, because diabetes carries with it a morbidity hazard; but, most important of all, the potentiality of developing the disease is inherited.

Diagnosis of Abruptio Placentae and Treatment with Wheat Germ Oil.—In a series of forty-four cases of spontaneous abortion, Shute observed that 73 per cent showed evidences in the blood serum of deficiency of vitamin E. It is now generally recognized that vitamin E has great prophylactic and therapeutic value in the treatment of abortion; therefore he began to study the corresponding use of a vitamin E preparation in

cases of abruptio placentae. Such an oil must be kept cold and be not more than eight weeks old. Patients first seen when placental detachment is already complete or nearly complete offer little excuse for anything but the classic measures used for such an emergency. However, a closer search for true uterine tenderness during pregnancy, combined with an early test of the blood serum for the presence of the specific hormone-vitamin imbalance, would be a great step in preventing the occurrence of such severe cases. It has been the author's experience with the less severe cases that, when properly and adequately saturated and kept saturated with vitamin E (as determined by clinical evidence and repeated tests of the serums), they have not progressed to a severe stage of placental detachment with death of the fetus. In approximately twenty hours, an adequate massive dose of from 8 to 12 drachms (32 to 48 Gm.) of bulk wheat germ oil has completely abolished the characteristic circumscribed area of uterine tenderness. The accompanying severe sacral backache and uterine cramps have subsided as rapidly. When uterine hemorrhage has been present, it has responded promptly as well. Stopping the oil therapy has often been followed by a recurrence of uterine tenderness and bleeding, which, in turn, have disappeared on further vitamin E therapy. No case recognized early and treated adequately has gone on to the severe classic type. The author's best results have been obtained in women who showed little or no evidence of an associated toxemia.

American Journal of Ophthalmology, St. Louis

20: 119-236 (Feb.) 1937

- Lectures on Cataract: II. Difficulties at the Time of Cataract Operation. R. E. Wright, Madras, India.—p. 119.
- Trichloroacetic Acid in Treatment of Iris Prolapse. J. W. Bettman and H. Barkan, San Francisco.—p. 131.
- Sympathetic Ophthalmia: Study of Some Clinical and Pathologic Factors in Thirty-Two Cases. D. H. Trowbridge Jr., Fresno, Calif.—p. 135.
- Chronic Traumatic Subdural Hematoma as Cause of Choked Disk. C. King, Cincinnati.—p. 149.
- *Experimental "Exophthalmos" in Dogs. II. E. Essex and W. C. Corwin, Rochester, Minn.—p. 153.
- Total Lipids of Human Cataractous and Sclerosed Lenses. P. W. Salit, Iowa City.—p. 157.
- Modification of Desmarres Operation for Transplantation of Pterygium. H. Miller, Kansas City, Mo.—p. 165.
- Neosynephrine: Mydriatic and Tension Reducing Actions. W. L. Post, Joplin, Mo.—p. 170.
- O'Connor Cinch Operation Technic. S. A. Durr, San Diego, Calif.—p. 178.

Experimental "Exophthalmos" in Dogs.—Essex and Corwin measured the position of the eye and found that anesthetics such as sodium amytal, pentobarbital sodium and a preparation of chloral dextrose administered intravenously, cause marked exophthalmos, surgical ether anesthesia produces slight exophthalmos, and ephedrine, tyramine and electrical stimulation of the vagosympathetic nerve of dogs anesthetized with certain intravenous anesthetics cause the eye to advance almost to the position seen when the animal is in a conscious state. In the unanesthetized animal, ephedrine and tyramine in appropriate doses do not produce an exophthalmos worthy of note. Tyramine causes the muscular cone of the eye of a dog under anesthesia with pentobarbital sodium to constrict in an identical manner and for a period comparable to that resulting from electrical stimulation of the cut vagosympathetic nerve. Repeated daily doses of tyramine do not cause exophthalmos in normal or experimentally thyrotoxic dogs.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

18: 65-128 (Feb.) 1937

- Short Wave Currents. W. Bierman, New York.—p. 71.
- *Short Wave Diathermy in Pulmonary Infections. S. Fiandaca, Palermo, Italy.—p. 79.
- Cancer Therapy by Electrosurgery and Radium. I. I. Kaplan, New York.—p. 92.
- Electro-Endothermy in Combined Treatment of Tumors. Isabel Mera Scharnagel, New York.—p. 95.
- Electrical Shocks: Causes, Incidence and Consequences. D. Macfarlan, Philadelphia.—p. 99.
- Iontophoresis of Varicose Ulcers. J. Kovacs, New York.—p. 103.

Short Wave Diathermy in Treatment of Pulmonary Infections.—Fiandaca shows the efficacy of short wave therapy by reporting twelve cases of pulmonary infections, only two of which were not benefited. Hemoptysis occurred in one case and the failure in the other one is explained by the distribution

of the bronchiectatic suppurative process. Hemoptysis can be corrected and avoided by the initial administration of weak doses administered over a longer period. Examination of the cases under consideration discloses that metapneumonic abscesses are the most sensitive to short wave therapy, while those of bronchiectatic origin are the most resistant. In three cases of bronchiectasis without abscess treated by short wave the results were merely a slight and temporary benefit. The appearance of vomitus marked the beginning of symptomatic improvement in three cases. Of the diverse symptoms pain, as a general rule, is the first to disappear. Fever at first becomes worse, then intermittent and finally decreases and disappears entirely. Expectoration is the most persistent phenomenon, at first losing its fetor, then the purulence, and finally remaining as seromucous sputum for some time. Strong dosage is essential if a pulmonary infection is to be cured, but treatment should be initiated with great care and with small dosage when this form of therapy is administered as a last resort. Observations do not appear to justify confirmation of a specific action of the short wave in the determination of bacterial form, especially if the multiplicity of the etiologic factors in every pulmonary abscess is considered. It appears more probable that the beneficial effect of short wave diathermy on pulmonary abscesses is ascribable to the anatomic structure and function of the lungs, which, according to Schliephake, present a special suitability to this kind of treatment, as compared with other structures of the human system. The alveolar structure of the lung through which the energy is radiated presents a lessened resistance, while the pulmonary ventilation and the rich vascular net prevent undue concentration of energy in the form of heat. These characteristics facilitate the application of relatively intense doses to a normal lung, but this would prove of little value for the control of a lesion with its break in the continuity of the spongy tissue and reduced blood supply. Naturally any such lesion would present intense reaction to a large dose. Pulmonary tissue proper would obtain a beneficial effect from stronger doses of short wave diathermy without at the same time producing lasting damage to the normal structures.

Canadian Medical Association Journal, Montreal

36: 223-338 (March) 1937

- Specific Tissue Reaction to Phospholipids: Suggested Explanation for Similarity of Lesions of Silicosis and Pulmonary Tuberculosis. J. T. Fallon, Toronto.—p. 223.
- Histologic Variations in Fetal Calves' Thyroids and Comparison with Maternal Thyroids. A. C. Abbott and J. Prendergast, Winnipeg, Man.—p. 228.
- Production of Tumor and Tumor-like Growths in Rats. J. E. Davis, Chicago.—p. 237.
- "Cascade Stomach" Associated with Impaired Esophageal Emptying in Case of "Nervous Indigestion." J.-W. Macleod, Montreal.—p. 242.
- Radiologic Findings in Case of Acute Pancreatic Necrosis. R. Carveth, D. J. Mills and N. B. Gwyn, Toronto.—p. 244.
- Study of Intracranial Hemorrhage in Infancy. U. J. Gareau, Regina, Sask.—p. 248.
- *Use of Apple Powder in Treatment of Diarrheal Conditions and Its Rationale. I. A. Manville, Elizabeth M. Bradley and Avoca S. McMinis, Portland, Ore.—p. 252.
- Experience with Fifty-Seven Brucellosis Infections in Saskatchewan. D. M. Baltzan, Saskatoon, Sask.—p. 258.
- Institutional Care in Treatment of Poliomyelitis. F. H. H. Mewburn, Edmonton, Alta.—p. 263.
- Our Experience with Hormone Treatment of Adenomatous Prostate. R. A. McComb and R. Pearce, Toronto.—p. 266.
- Some Observations on Glycine Metabolism in Patients Suffering from Myasthenia Gravis. E. J. Maltby, Toronto.—p. 272.
- Glaucoma, Pressure and Infection. R. Kerry, Montreal.—p. 275.
- Treatment of Hernia by Injection. F. B. Bowman, Hamilton, Ont.—p. 276.
- Some Thoughts on Acute Osteomyelitis of Long Bones. R. B. Deane, Calgary, Alta.—p. 279.
- Environment and the Neuroses. Ruth MacLachlan Franks, Toronto.—p. 281.
- Early Secondary Abdominal Pregnancy with Massive Intra-Abdominal Hemorrhages: Two Cases. J. O. Baker, Edmonton, Alta.—p. 285.
- Interesting Family History of Appendicitis. G. G. Leckie, Lucky Lake, Sask.—p. 287.

Apple Powder in Treatment of Diarrheal Conditions.

—Manville and his associates declare that the apple, since it contains acids, sugars and starch, cellulose and hemicelluloses, vitamins and pectin, occupies first place as a therapeutic agent of the fruit type. Tannic acid, because of its astringent effect, forms a protective coating on the mucous membrane. The tannin content of the apple is unaltered in the preparation of the powder. Its concentration, however, is increased, since it

requires 100 Gm. of raw apple to make 15 Gm. of powder. Malic acid, as well as the other organic acids, is not appreciably altered in the preparation of the powder. There is some evidence to the effect that malic acid possesses a definite antiseptic value. The available sugar content of the apple is a little more than 12 per cent. It is composed of dextrose, sucrose, fructose and a small amount of starch. Aside from its caloric value, sugar increases the colloidal properties of pectin. The cellulose content of the fresh apple is slightly more than 1 per cent, while that of apple powder is a little more than 8 per cent. The vitamins contained in apples are limited to A, B and C. The chief value of the apple in the treatment of diarrheas and dysenteries appears to reside in the pectin component. It is partly due to their absorptive quality that pectins are able to fix bacilli and toxins and thus render them inert and to take up the fluid secretions and thereby convert a fluid stool into a formed one. Pectin removes the irritants and by providing bulk stimulates a normal physiologic peristalsis. Pectin is also a good buffer and, through the medium of this activity, is able to keep the fluctuations in the reaction of the intestinal contents within narrow limits. It also acts to some extent as a protective colloid. Apple powder has its greatest application in infantile conditions but is becoming definitely useful in the treatment of gastro-intestinal diseases in the adult.

Florida Medical Association Journal, Jacksonville

23: 355-412 (Feb.) 1937

- Systolic Murmur, Its Interpretation. S. M. Salley, Miami.—p. 369.
- Rôle of Sinusitis in Production of Cough. J. W. Taylor, Tampa.—p. 371.
- Preventive Medicine and the Practitioner. W. A. McPhaul, Jacksonville.—p. 377.
- *Diagnosis of Pulmonary Tuberculosis in Its Preclinical and Early Clinical Stages. H. W. Hetherington, Philadelphia.—p. 379.

Early Diagnosis of Pulmonary Tuberculosis.—Hetherington points out that case finding is the diagnosis of tuberculosis in its early clinical and preclinical stages. The dispensary method and the survey method are the two types of case finding procedures. The survey method is applicable to groups, such as high school, college and university students, to nurses and to industrial employees. It consists of a tuberculin test, roentgen examination, occasionally fluoroscopic examination and the application of clinical procedures to give additional information. The dispensary method consists in the examination of individuals with symptoms suggesting tuberculosis and the institution of prophylactic care and treatment when a diagnosis is made. It is among the contacts of sputum positive tuberculosis that new cases of tuberculosis are most likely to be found. Here the tuberculin test is an index of the infection of other members of the household. Roentgen examination is used to determine the presence of a lesion and to define its extent and characteristics. Members of households in which clinical tuberculosis exists should have periodic examinations, with roentgen examination at appropriate intervals. The tuberculin test and roentgen examination is valuable not only in the diagnosis of tuberculosis in the early clinical and preclinical stages but also in excluding this diagnosis.

Indiana State Medical Assn. Journal, Indianapolis

30: 115-176 (March) 1937

- *Control of Syphilis and Gonorrhea. L. E. Burney, Washington, D. C.—p. 115.
- Sociological Aspects of Venereal Disease Control. N. K. Forster, Hammond.—p. 120.
- Prophylaxis. A. F. Weyerbacher, Indianapolis.—p. 123.
- Diagnosis of Gonorrhea and of Primary Syphilis. J. T. Day, Indianapolis.—p. 126.
- Standard Treatment of Syphilis. S. W. Litzemberger, Anderson.—p. 128.
- Management of Acute Gonorrhea. C. J. Cooney, Fort Wayne.—p. 131.
- Treatment of Chronic Gonorrhea in the Male. H. O. Mertz, Indianapolis.—p. 135.
- The Problem of the Pregnant Syphilitic Woman. J. E. Dalton, Indianapolis.—p. 137.
- Syphilis in Infants and Children. E. R. Carlo, Fort Wayne.—p. 140.
- History of Syphilis Control. F. W. Cregor, Indianapolis.—p. 144.
- Why Don't We Stamp Out Syphilis? F. R. N. Carter, South Bend.—p. 147.

Control of Syphilis and Gonorrhea.—Burney enumerates how every physician can do his part in the control of venereal disease. 1. Reporting of all cases of venereal diseases is a necessary procedure just as it is in typhoid or tuberculosis. If sources and contacts are to be found, examined and treated

and if infectious cases lapsed from treatment are to be returned to the physician, case reporting must be done. 2. It is essential that the physician follow proved, accepted standards of treatment in early cases to render the patient noninfectious when continuous and adequate treatment is so important. 3. The value of a routine serologic test is beyond question. In pregnancy, it must be a part of the first examination—rich or poor patient, early or late stage. 4. The physician-patient relationship is most important, something that cannot be obtained outside of private practice. 5. The physician must take his rightful place as an educator and teacher in all health problems. It is far better for him, with his scientific knowledge and experience, to tell young people about venereal diseases than for some socially minded but uninformed person to present a lot of untruths and misstatements which only confuse. 6. Cooperation with state and local health departments will be both beneficial and helpful in the combined efforts to control venereal diseases. Health departments do not take practice away from the physician; on the contrary, they should add to it through their many and varied educational programs. The physician should make use of them for his free laboratory service, for consultation and for any information he may desire and, in return, help them by his fullest cooperation. This is not a problem for one man or for one group; it can and must be a united effort.

Iowa State Medical Society Journal, Des Moines

27: 49-92 (Feb.) 1937

Breast Tumors and Surgical Clinic. W. W. Babcock, Philadelphia.—p. 49.

Tumors of Posterior Cranial Fossa: Review of All Cases of Infratentorial Intracranial Tumors Admitted to the State University Hospitals from July 1, 1934, to June 30, 1935. A. E. Walker, Iowa City.—p. 55.

*Hypertonic Glucose Therapy in Cardiovascular Diseases. M. G. Meyer, Marshalltown.—p. 61.

Ectopic Pregnancy. P. F. Miner, Woodward.—p. 64.

Rocky Mountain Spotted Fever. L. B. Sedlacek, Cedar Rapids.—p. 67.

Hypertonic Dextrose Therapy in Cardiovascular Diseases.—In reviewing the benefits of intravenous dextrose therapy in cardiovascular disease, Meyer mentions certain precautions. The solution should be warmed to body temperature, and only a solution made and tested by a standard pharmaceutical house should be used. Any concentrated solution is extremely irritating to subcutaneous tissues, and a 50 per cent concentrated solution almost invariably causes sloughing. Too rapid administration of even small amounts is attended with a definite drop in blood pressure, and pulmonary edema is another possibility when the compensation is in delicate balance. Venous thrombosis rarely occurs if the needle is inserted some little distance into the vein lumen. Continued daily injections of concentrated solutions will produce a secondary anemia. This was demonstrated experimentally in five apparently healthy persons who were given a series of hypertonic injections with the counts being made on venous blood. Hydremia will explain the initial drop, but carefully made slides showed a disintegration of red cells to a much greater extent ten minutes after the dextrose than in those before administration. The really valuable attributes of dextrose in cardiovascular diseases are well established. It has been proved experimentally that 50 per cent concentrated solutions increase the coronary rate of flow from 10 to 100 per cent and that the response is always obtained with repetition. In addition to its vasodilatory action, it has been shown experimentally that there is a marked increase in the glycogen reserve in the myocardium. By so doing the size of the resultant infarction, when a sudden occlusion results, should be materially reduced. In arteriosclerosis with cardiorenal failure characterized by hypertension, edema and diminished urinary secretion, concentrated dextrose has been used extensively. Theoretically it should offer good insurance against a too rapid degenerating myocardium and kidney tissue. In addition, its diuretic action is beneficial to the patient's comfort. Alleviation of subjective symptoms such as heart consciousness, headache, dizziness and mental cloudiness is marked. Chronic congestive heart failure due to arteriosclerotic degeneration also responds favorably to this type of therapy. Improved circulation through the coronary arteries and the increased food supply to the myocardium accounts for symptomatic relief.

Johns Hopkins Hospital Bulletin, Baltimore

60: 73-158 (Feb.) 1937

Study of Four Cats Deprived of Neocortex and Additional Portions of the Forebrain. P. Bard and D. M. Rioch, Boston.—p. 73.

Activation of "Prontosil Solution" in Vitro by Reduction with Cystine Hydrochloride. Eleanor A. Bliss and P. H. Long, Baltimore.—p. 145.

Journal of Experimental Medicine, New York

65: 317-468 (March) 1937

Studies on Meningococcal Infection: X. Further Note on Presence of Meningococcus Precipitinogens in Cerebrospinal Fluid. H. E. Alexander and G. Rake, New York.—p. 317.

Chemical Investigations on Active Principles of Phenomenon of Local Skin Reactivity to Bacterial Filtrates: I. Purification by Dialysis and Attempts at Fractional Precipitation. G. Schwartzman, S. Morrell and H. Sobotka, New York.—p. 323.

Anaphylactic Sensitization with Chemically Definite Compounds. H. E. Fierz, W. Jadassohn and W. Stoll, Zurich, Switzerland.—p. 339.

*Changes in Cutaneous Lymphatics of Human Beings and in Lymph Flow Under Normal and Pathologic Conditions. P. D. McMaster, New York.—p. 347.

*Lymphatics and Lymph Flow in Edematous Skin of Human Beings with Cardiac and Renal Disease. P. D. McMaster, New York.—p. 373.

Molecular Weight of Antibodies. M. Heidelberger, New York, and K. O. Pedersen, Uppsala, Sweden.—p. 393.

Antidiuretic Pituitary Substance in Blood, with Especial Reference to Toxemia of Pregnancy. K. I. Melville, Montreal.—p. 415.

Blood Plasma Protein Regeneration as Influenced by Infection, Digestive Disturbances, Thyroid and Food Proteins: Deficiency State Related to Protein Depletion. S. C. Madden, P. M. Winslow, J. W. Howland and G. H. Whipple, Rochester, N. Y.—p. 431.

Liver Function and Blood Plasma Protein Formation: Normal and Extremes. R. E. Knutti, C. C. Erickson, S. C. Madden, P. E. Rekers and G. H. Whipple, Rochester, N. Y.—p. 455.

The Lymphatics and Lymph.—McMaster points out that vital dyes injected intradermally enter lymphatic capillaries directly, rendering them visible, and appear later in the draining lymphatic trunks as colored streamers. The method yields consistent results when tested under physiologic conditions known to increase or decrease lymph flow. In the horizontally placed normal limb at rest there is slight lymph flow. In a normal leg or arm hanging downward, lymph flow ceases although fluid in the limb increases. When a previously dependent arm is raised above the head, or when the foot of a seated subject is propped on a table, lymph flow in the raised limb becomes active. It ceases in the skin of an arm subjected to partial obstruction of the veins by pressure from without, but very active lymph flow appears during the reactive hyperemia that follows on the release of venous obstruction. It is still greater following release of total circulatory obstruction and seems to be the same whether or not the limb has been engorged previously with blood. In the ischemic patches which appear in the skin of a limb during total circulatory obstruction (Bier's spots) the lymphatic capillaries are definitely and considerably constricted, whereas they are slightly dilated in the purple, congested regions of the skin round about. On release of obstruction there occurs a strikingly rapid, equal lymphatic drainage from both regions. When dye is injected intradermally and the skin sucked, much of the foreign material is driven into the lymphatics draining the injected area.

Lymphatics and Lymph Flow in Edematous Skin.—McMaster performed more than 100 tests on twenty persons with cardiac disease and edema of the lower limbs. The tests yielded evidence of stagnation of lymph and incompetence of the lymphatics. In contrast to the stagnation of lymph in the edematous skin of patients suffering from cardiac disorder there exists a greatly increased cutaneous lymph flow in patients with nephritic edema. Local intradermal injections of dye have disclosed the fact that the skin lymphatics in regions of cardiac edema are patent, full of fluid and much widened. Intercommunication between them is ready and dye escapes from them more rapidly than from the vessels of normal skin. A retrograde distribution of dye by way of the lymphatics often occurs and it may pass unseen along the deeper channels to emerge in the skin at unexpected, distant situations. A valvular incompetence of the lymphatics consequent on dilatation would appear to be the cause of these phenomena. In regions of cardiac edema lymph stagnates, despite the fact that the channels are open. In nephritic edema the lymphatic capillaries are wider than normal but not as wide as in cardiac edema. No sign of incompetence of the valves is to be observed. Instead

lymph flow is considerably greater than normal, even when edema fluid is accumulating. It is greater in the periods of fluid equilibrium also and extraordinarily rapid in periods of diuresis.

Journal of Lab. and Clinical Medicine, St. Louis

22: 439-546 (Feb.) 1937

- Mechanism of Anemia. R. L. Haden, Cleveland.—p. 439.
- *Quantitative Relationship of Complement to Hemolysin: Its Direct Application in Serodiagnosis of Syphilis. J. Koopman and I. D. Falker, New York.—p. 457.
- Observations on Living Mesenteric Capillaries. J. H. Ferguson, University, Ala.—p. 462.
- Visceral Temperatures in Intact and Unanesthetized Animal: I. New Technic for Measurement. J. B. Hamilton, New Haven, Conn.—p. 466.
- Effect of Paraldehyde and Benzyl Alcohol on Uterine Activity. G. B. Roth and H. F. Kane, Washington, D. C.—p. 477.
- *Trichinosis: Report of Two Cases with Eosinophils in Stools. E. A. Baumgartner and A. Cowles, Newark, N. Y.—p. 484.
- Antigenic Relationships of Hemolytic Streptococcus Exotoxins from Different Pathologic Conditions, with Especial Reference to Erysipelas. Betty S. Kolchin, New York; assisted by Rebecca Shapiro, Irena Feig and Gertrude Cohen.—p. 490.
- Further Studies in Treatment of Agranulocytosis: Effect of Injections of Liver Extract and Milk Protein on Blood and Bone Marrow of Rat. C. Reich and Eleanor Reich, New York.—p. 503.
- Preparing Permanent Smoked-Paper Tracings. V. Collier Jr., Washington, D. C.—p. 506.
- Study in Difficulties Encountered in Friedman Test, and New Modification Using Blood Serum. A. M. di Gioia, San Francisco.—p. 508.
- Accuracy of New Technic for Measurement of Red Blood Corpuscle Sedimentation. R. I. Dorfman and C. Brooks, New Orleans.—p. 510.
- Use of Colloidal Iodine as Modification of Gram Stain. D. C. Lyons, Jackson, Mich.—p. 523.
- Acetone Solvents for Romanowsky Stains. D. M. Kingsley, New Orleans.—p. 524.
- Evaluation of Takata-Ara Reaction for Diagnosis of Liver Cirrhosis. R. O. Bowman and R. S. Bray, Providence, R. I.—p. 532.
- Acetone Determinations by Acute and Simple Diaphanometric Method. C. Lange, Berlin, Germany.—p. 537.

Complement in Serodiagnosis of Syphilis.—Koopman and Falker assert that the quantitative relationship of complement to hemolysin is of more than academic importance. It has a direct bearing on the accuracy and consistency of all complement fixation tests. It is also the fundamental factor needed to solve the problem of the effect of the natural hemolysin in patients' serums on complement fixation results. The experiments that they outline demonstrate that in complement fixation reactions an excess of one reagent does not compensate for a deficiency of the other, and any method which is based on the theory of compensation cannot produce reliable or consistent results. A titration that is useful in disclosing the relationship existing between complement and hemolysin is planned so that various amounts of complement from a minimum (0.01 cc.) to a maximum (0.1 cc.) are allowed to act with various amounts of hemolysin from a minimum to a maximum. The effect desired will be more clearly shown if the complement and hemolysin are diluted so that each solution contains one unit in a volume of 0.1 cc. The cells are a 5 per cent suspension, and 0.1 cc. is used in each tube. The total volume is 0.5 cc. This titration should be allowed to remain in the water bath at 37 C. for at least one hour.

Trichinosis with Eosinophils in Stools.—Baumgartner and Cowles found eosinophils in the stools of two patients who had had diarrhea for weeks. A history of eating raw sausage just before this diarrhea began was obtained in both; they had high eosinophil percentages in blood smears at that time and now gave positive skin and precipitin reactions to trichina antigen. Four patients known to have had trichinosis also gave positive skin and three of these positive precipitin tests. One patient, an Italian girl, daughter of a known trichinosis patient, had an eosinophilia at the time of her mother's illness and now gave a markedly positive skin and precipitin test. Nine patients with no record of an eosinophilia and a negative history for trichinosis all gave negative skin tests and three of these had a negative precipitin test. Three patients in whom an eosinophilia (10, 11 and 23 per cent) was found in routine blood counts gave positive skin tests and one of these a negative precipitin test. The securing of positive skin tests in cases of eosinophilia may be accidental, since McCoy and others also noted this, but a further study of such cases with skin and precipitin tests is indicated.

Journal of Nutrition, Philadelphia

13: 123-234 (Feb. 10) 1937

- Comparison of Glycine Contents of Proteins of Normal and Chondrodystrophic Chick Embryos at Different Stages of Development. A. R. Patton, Ithaca, N. Y.—p. 123.
- *Iron Retention in Infancy. Genevieve Stearns and Dorothy Stinger, Iowa City.—p. 127.
- Conservation of Blood Iron During Period of Physiologic Hemoglobin Destruction in Early Infancy. Genevieve Stearns and J. B. McKinley, Iowa City.—p. 143.
- Comparative Study of Respiratory Quotient Following Ingestion of Glucose and of Fructose as Affected by Lactic Acid and Carbon Dioxide Changes in Blood. G. Bachmann and J. Haldi, with technical assistance of W. Wynn and C. Ensor, Emory University, Ga.—p. 157.
- Effect of Diet on Constancy of Urinary Nitrogenous Constituents Excreted Daily by Preschool Children. Jean E. Hawks, Merle M. Bray and Marie Dye, East Lansing, Mich.—p. 179.
- Respiration Chamber for Use with Human Subjects. L. H. Newburgh, Margaret W. Johnston, F. H. Wiley, J. M. Sheldon and W. A. Murrill, Ann Arbor, Mich.—p. 193.
- Further Experiences with Measurement of Heat Production from Insensible Loss of Weight. L. H. Newburgh, M. W. Johnston, F. H. Lashmet and J. M. Sheldon, Ann Arbor, Mich.—p. 203.
- Improved Growth in Rats on Iodine Deficient Diets. R. E. Remington, Charleston, S. C.—p. 223.

Iron Retention in Infancy.—Stearns and Stinger determined the quantities of iron actually retained by fourteen infants from 7 to 54 weeks of age who were given various types of feeding. One infant was given human milk; the basic milk formula for the others consisted of evaporated milk containing a cod liver oil concentrate. The milk feeding was acidified with citric acid and contained 6 per cent of added carbohydrate, a dry dextrin-maltose mixture. Distilled water was used for making up the feedings. Each infant was given 2 ounces (60 cc.) of orange juice daily. Egg yolk, potassium and iron salts, when fed, were added to the formula; spinach and cereal were fed separately. During the experimental periods the day's feeding for each infant was quantitatively prepared and an aliquot saved for analysis. The baby given human milk was never in negative balance although the retention was always small. Those given cow's milk feedings alone lost an average of 0.05 mg. of iron daily. The age of the infant had no apparent influence on the ability to retain iron. Neither egg yolk nor spinach, in the amounts given, increased the iron retention. The retention was definitely increased when the infants were given the special iron-rich cereal or ferric ammonium citrate. No consistent relationship was observed between the iron retention and the intake of potassium, calcium or phosphorus. It appears that an intake of approximately 0.5 mg. of iron as food or as soluble salt per kilogram of body weight is necessary to insure a retention of iron, and an intake of from 1 to 1.5 mg. per kilogram permits ample retention. Ample retentions were observed with these intakes of iron, whether the source of iron was from a special cereal and egg or from ferric ammonium citrate.

Journal of Thoracic Surgery, St. Louis

6: 237-354 (Feb.) 1937

- Experimental Study of Some Physiologic Changes Following Total Pneumonectomy. J. J. Longacre, B. N. Carter and L. M. Quill, Cincinnati.—p. 237.
- *Intrathoracic Anatomic Readjustments Following Complete Ablation of One Lung. W. F. Rienhoff Jr., Baltimore.—p. 254.
- Results of Fifteen Consecutive One-Stage Lobectomies for Bronchiectasis. E. J. O'Brien, Detroit.—p. 278.
- Lobectomy and Pneumonectomy in Bronchiectasis and Cystic Disease. E. D. Churchill, Boston.—p. 286.
- Bronchoscopic Aspects of Bronchial Tumors, with Especial Reference to So-Called Bronchial Adenoma: Reports of Twelve Cases. C. L. Jackson and F. W. Konzelmann, Philadelphia.—p. 312.
- Fate of Remaining Lung Tissue After Lobectomy or Pneumonectomy. J. L. Bremer, Boston.—p. 336.
- Total Pneumonectomy for Congenital Bronchiectasis. J. Arce, Buenos Aires, Argentina, South America.—p. 344.
- Mass Ligation of Pulmonary Hilum with Silver Band: Experimental Study. P. Shambaugh, Chicago, and R. Zollinger, Boston.—p. 350.

Intrathoracic Anatomic Readjustments Following Complete Ablation of One Lung.—Rienhoff presents his analysis of sixteen cases, in twelve of which a complete pneumonectomy was performed and in two a posttraumatic atrophy of the left lung had occurred; in the remaining two there was a congenital absence of one lung. The restitutional compensatory mechanism following total or partial removal of a lung is based on the readjustment and adaptation of the thoracic cage and diaphragm on the operated as well as on the unoperated side, on the com-

the skin test. This is a smaller percentage than is found among normal women at or about full term. Contrary to experience in scarlet fever, none of the positive reactors gave a negative reaction when retested subsequently at an interval ranging from six to thirty-seven days. The filtered peritoneal exudate of two fatal cases of puerperal peritonitis in which an intense scarlatiniform rash had occurred during life was found to contain an erythrogenic toxin of considerable potency when tested on human beings, and this toxin was neutralized by standard antitoxin. With one of the filtrates a sharp febrile reaction also resulted from intradermal injection. A serum to be of value as a prophylactic remedy against puerperal infection must be capable of preventing invasion by any one of many types. Until there is unmistakable evidence of the curative value of serum given after the beginning of experimental infections of animals (i. e., in circumstances comparable to those of human infections), it would seem prudent to withhold serum treatment in human cases.

Observations on Etiology of Influenza.—The attempts of Fairbrother and Hoyle to isolate by ferret inoculation a virus from cases of sporadic influenza and other diseases during an interepidemic period in the Manchester district have given negative results. Studies of normal human serums in the area have shown that neutralizing antibodies against both human and swine influenza viruses are present in many of the serums. A complement fixation test has been developed for the study of the antibody content of human serums and the results obtained indicate the presence of a common antigenic factor in the human and swine viruses. The antigen concerned with complement fixation is distinct from that involved in the neutralization test. Attempts to isolate virus from material collected during an outbreak of epidemic influenza in Leningrad have given negative results, although it is possible that the delay in transit of the material may explain this failure. A study of a small number of serums collected after the epidemic has provided some evidence that the virus may have been the causal agent.

Lancet, London

1: 247-306 (Jan. 30) 1937

Recent Aids to Prognosis of Pulmonary Tuberculosis. R. R. Trail.—p. 247.

Immunizing Potency of Antigenic Components Isolated from Different Strains of Bacteria Typhosum. W. W. C. Topley, H. Raistrick, J. Wilson, M. Stacey, S. W. Challinor and R. O. J. Clark.—p. 252.

Immunizing Activity of Certain Chemical Fractions Isolated from Hemolytic Streptococci. T. C. Stamp and E. B. Hendry.—p. 257.

Diagnosis and Treatment of Duodenal Ulcer. F. McPhedran and T. Owen.—p. 260.

*Use of "Doryl" (Carbaminoylcholine) in Postoperative and Postpartum Retention of Urine. C. Moir.—p. 261.

Treatment of Postoperative Retention of Urine with Doryl. J. S. Maxwell.—p. 263.

Rider's Bone: Report of Case. A. Moore.—p. 264.

Carbaminoylcholine in Postoperative and Postpartum Retention of Urine.—Moir used carbaminoylcholine in the treatment of thirty-eight cases of postoperative or postpartum retention of urine. The drug is often remarkably successful in causing the patient to void urine naturally and is worthy of trial in patients for whom catheterization would otherwise be necessary. Its most successful use is after abdominal section or after a simple vaginal operation. It is least successful in patients suffering from overdistention of the bladder—especially after childbirth, and in cases in which there is mechanical obstruction to the passage of urine. One of the chief errors to guard against is the assumption that a patient has completely emptied her bladder by the micturition induced by the drug. Often the evacuation is only partial. Side effects (slightly accelerated pulse, nausea, faintness and a feeling of warmth) are seen in about a third of the cases but are seldom serious. The dose, 0.25 mg. of the pure substance dissolved in 1 cc. of fluid, was usually given intramuscularly.

South African Medical Journal, Cape Town

11: 1-38 (Jan. 9) 1937

The Itinerant Operator. L. I. Myerson.—p. 3.

The Chief Therapeutic Advances During the Past Twenty-Five Years. A. W. Falconer.—p. 6.

A Rural Hospital in India. H. de Villiers.—p. 11.

South African Public Health Services. H. S. Gear.—p. 13.

Mémoires de l'Académie de Chirurgie, Paris

63: 183-214 (Feb. 17) 1937

Bilateral Kienboeck's Disease of Semitarsals of Wrist. Madier and Ségal.—p. 191.

*First Attempts at Heteroplastic Medullary Grafts in Man in Injuries of Peripheral Nerves. A. Gosset and I. Bertrand.—p. 197.

Heteroplastic Medullary Grafts.—More than two years ago Gosset and Bertrand reported their experiments in grafting pieces of the spinal cord on a severed peripheral nerve in animals. In the succeeding two years they continued their experiments also on man. Twelve such graftings were done in France, of which four were by the authors. The animal used is the adult rabbit or the cat weighing from 5 to 6 pounds which is killed by severing its carotid artery under short anesthesia. Under strict asepsis the dorsal part of the spine is resected. The dura mater is carefully laid bare, without the slightest injury to it or to the underlying cord, which is dissected. The cord together with its spinal segment is immersed in a 20 per cent solution of formaldehyde. The next day it is easy to free the cord from its bony attachment and then it is again immersed in a fresh 20 per cent solution of formaldehyde. It can thus be preserved for a number of months. A few days before using it the piece of cord is washed in sterilized salt solution, which should be renewed as often as there are traces of formaldehyde left. It is then immersed for two or three days in 90 per cent alcohol. The authors' first experiment was on an interrupted radial nerve at the elbow. The graft was united with a silk suture to the upper end of the nerve and with three silk sutures to its lower end. Two months later, dorsal extension of the wrist was possible. About a year later this activity became much stronger, but extension of the fingers and abduction of the thumb were incomplete. There is also hypoesthesia in the area of the radial nerve. About fourteen months after the operation, weak electrical responses were demonstrated. The procedure in the other cases was similar. In contrast with the usual well known slowness of recuperation, this intervention shows rapid regeneration. Of course, part of the success must be attributed to the youth of the patients. The authors assume that there is a vicarious substance in the dead graft which is capable of activating the progression of the axis cylinder. This is astounding in view of the fact that the living central nervous substance prevents the regeneration of the axis cylinder. Physicochemical processes seem to play an important part in either accelerating or retarding the recuperative forces in a degenerated nerve.

Presse Médicale, Paris

45: 273-288 (Feb. 20) 1937

Rheumatic Pneumonia. R. Debré, J. Marie, J. Bernard and E. Normand.—p. 273.

*Action of Gastric Juice on Gastric Secretion. Léon-Meunier.—p. 276.

Thyroid Osteosis and Spontaneous Fracture in Exophthalmic Goiter: Case. F. Gottlieb and M. Schachter-Nancy.—p. 277.

Action of Gastric Juice on Gastric Secretion.—The treatment of gastric ulcer by injection of various substances has been the subject of numerous articles. All these reports show only a restricted duration of observation and a consistent admission of the sedative action of the injected material. Léon-Meunier utilized Loeper's experiments with pepsin because it is a positive colloid and as such has, like proteins, shock properties, and also because it is a specific colloid and can be used like glandular extracts. Idiosyncrasies, which occurred even when feeble doses were used, prompted the author to employ the patient's own pepsin. The fasting patient receives an intragluteal injection of 0.5 cc. of a solution of histamine of 1 mg. per cubic centimeter. After a few minutes, when the patient has symptoms of vasodilatation, he is given orally 50 cc. of physiologic solution of sodium chloride. The gastric mixture is then extracted from the patient in a horizontal position, filtered, submitted to fractional sterilization at 140 F. and neutralized with a sterile isotonic solution of sodium bicarbonate. Subcutaneous or cutaneous injections are given in the buttocks daily in amounts of 1 cc. of this solution. During this treatment the patient undergoes no change of diet. By injecting histamine without a test meal the author believes that errors due to residual fluids have been eliminated. This enables him to determine the constant acidity of the gastric juice, which

is a true picture of the gastric mucosa in action. Through the injection of the patient's own gastric secretions the author obtained a diminution of pain in hypersecretion accompanied or not by an ulcerous lesion. This diminution of pain runs parallel with a decrease in acidity estimated as constant acidity by the method of double dilution. These phenomena are a result of desensitization of the patient, causing a decrease in acidity and a consequent change in the element of pain. But they do not allow the deduction of anatomic cure of the ulcer.

45:289-312 (Feb. 24) 1937

Neurovegetative System During Hyperthermy. Pasteur Vallery-Radot, G. Mauric and J. Lemant.—p. 289.

*Yellow Fever and Antiamarillic Vaccination. E.-L. Peyre and P. Fricaud.—p. 291.

Pulmonary Lesions in Country Schools. M. Gillard.—p. 294.

Yellow Fever and Antiamarillic Vaccination.—Peyre and Fricaud, of the French colonial army, describe nine cases of meningeal accidents occurring a few days after vaccination against yellow fever. A noncommissioned officer received two injections in three weeks. Two days after the second injection he presented general urticaria, vomiting, debility and raised temperature but no albuminuria. He had tremors in both arms, especially the right, diffuse hypertonia, myoclonic agitation and cogwheel sign. There was progressive improvement, but relapse occurred ten weeks later. The tremors of the right arm hindered his work and, because his general condition remained deficient, he was invalided home. Two groups of symptoms must be considered in almost all cases, one dealing with visceral disorders caused by a virus which is little pathogenic for man. The other group is caused by the neurotropic virus able to bring forth an encephalitic reaction after a simple subcutaneous injection. A fatal case of yellow fever in a previously vaccinated subject was of the latter type: onset with fever, pain in the back and epigastrium, alimentary, bilious and hemorrhagic vomiting, metrorrhagia, subcutaneous ecchymoses and albuminuria; after four days improvement and icterus, but the next day exacerbation of symptoms and death of amarillic hepatitis. This case and some tests made on rhesus monkeys seem to throw doubt on the efficacy of yellow fever vaccination, and its inconstant action on mice has raised doubts as to the fixity of the neurotropic virus. In four recent cases albuminuria was found to be of less reliable diagnostic value. Instead, azotemia was a faithful prognostic guide. It seems to be the result of considerable disassimilation of nitrogenous substances of the organism which have an extrarenal bearing on the parenchyma of the liver. This bearing is evidenced also by hypochloremia and some authors have demonstrated that, whenever the elimination of chlorides is considerably diminished in infectious diseases, as in yellow fever, there is retention of injected chlorides during the disease, probably for the neutralization of azotemia, and an increased elimination at the beginning of convalescence. It was therefore encouraging to notice an increase in elimination following injections of sodium bicarbonate and chloride, and, in one case, of hypertonic saline solution. The blood urea rose to 1 Gm. at the critical point on the sixth day, to come down to 0.4 on the ninth day. The pathologic physiology of yellow fever is little known as yet and its vaccination has no constant action.

Bol. d. Società Medico-Chirurgica, Pavia

50:947-1234 (No. 6) 1936. Partial Index

*Calcaneal Apophyseal Dystrophy: Cases. F. Leinati.—p. 947.
Positive Intrapleural Pressure in Course of Bilateral Artificial Pneumothorax. C. Sartori.—p. 1011.

Mechanism of Action of Pneumoperitoneum. G. Ferrari and A. Bertola.—p. 1027.

Pseudotumor of Pancreas from Gumma in Syphilitic Pancreatitis: Case. G. Barbaro-Forleo.—p. 1039.

Therapeutic Pneumoperitoneum. G. Ferrari and A. Bertola.—p. 1091.

Influence of Morphine and Histamine on Cutaneous Reaction to Tuberculin. G. Ferrari.—p. 1131.

Juvenile Calcaneal Apophyseal Dystrophy.—According to Leinati, juvenile calcaneal apophyseal dystrophy enters into a group of dystrophies with which it has in common their development in growing children and their pathogenesis, symptomatology, anatomopathologic picture, x-ray appearance and clinical evolution. The disease is more frequent than is believed. Some cases are not reported to physicians but improve by

rest or by limitation of physical activities. Others are erroneously diagnosed as achillodynia, talalgia or rheumatism. The disease develops at the time of appearance of the secondary nucleus of ossification of the calcaneus and complete ossification of the nucleus. Circulatory and endocrine disturbances and toxic, dyscrasic and infectious factors, associated with a mechanical stimulation, either unique and strong or continuous and weak, cause subchondral necrosis of the spongy epiphysis with consequent pain in the bone and impaired function of the foot. The early lesion constitutes the place of diminished resistance at which the osteogenic activity is intensified and the blood supply increased. Arrival of bacteria in the primary lesion may cause infectious acute apophysitis, either benign and similar to juvenile dystrophy or grave and even fatal phlegmonosis. The diagnosis is easy because of the fact that the disease has the following clinical characters: It appears in the juvenile age, the pain is located at the point of insertion of the achilles tendon, causes functional incapacity of the foot, has special x-ray aspects in relation to the form and ossification of the bone, and the subjective signs disappear by complete rest of the patient. The differential diagnosis is especially made with tuberculous and pyogenic apophysitis and retrocalcaneal bursitis. As a rule there are no complications. The prognosis is good. The treatment depends on the type and evolution of the disease. It consists in local hot and other applications, rest, use of orthopedic apparatus and a general treatment with phosphorus, iodine, arsenicals, calcium, vitamins and opotherapy. Four cases are reported.

Lattante, Parma

8:1-72 (Jan.) 1937

Quantitative Modifications of Vitamin C of Milk of Women in Relation to Sea Climate. F. Rubini.—p. 15.

Postinfectious Acute Meningo-Encephalitis: Cases. N. Carrara.—p. 21.

*Powdered Vegetables in Treatment of Anemia in Infants. F. Rubini. p. 33.

Treatment of Rickets. M. Barbone.—p. 40.

Powdered Vegetables in Diet of Infants.—Rubini has examined the blood of a group of twelve infants, ranging in age from 6 to 19 months, who suffered from anemia of varying intensity, before and after administration of a preparation of powdered vegetables. The group included infants fed on mother's milk as well as on artificial or mixed diets. The administration of powdered vegetables added to the diet resulted in increasing the hemoglobin and the number of erythrocytes, the globular value and the globular ratio. The leukocyte formula showed only slight modifications, the lymphocytes being slightly increased at the expense of the neutrophils. According to the author, the improvement in the blood crisis depends on the supply of mineral salts and vitamins contained in the powdered vegetable preparation. The treatment is of value in controlling and in preventing anemia in infants.

Riforma Medica, Naples

53:151-184 (Jan. 30) 1937

*D'Amato's Signs for Diagnosis of Pleural Effusion. R. Locascio.—p. 151.

Hyperazotemia and Chloropenia in Acute Abdominal Conditions: Treatment with Intravenous Injections of Hypertonic Solution of Sodium Chloride. M. Santi.—p. 158.

Pleural Effusion.—Locascio studied the mechanism of production of D'Amato's signs. They were described in *Riforma medica* 51:1503 (Oct.) 1935 and abstracted in *THE JOURNAL* Dec. 28, 1935, page 2190. The signs described consist in the paradoxical displacement of lateral dullness from the upper to the lower segments of the vertebral column and from the vertebral segment to the cardiac area, when the patient changes from the sitting position to the lateral decubitus and lies on the side opposite to that on which the pleural effusion is located. The author shows, by means of photographs, the behavior of paravertebral and paracardiac dullness in several types of pleural effusion. According to the author the results of roentgen examinations of the thorax during the postural changes of the patient showed that the paradoxical lowering of dullness about the vertebral column is an indication that pleural effusion can be displaced in the pleural cavity. The phenomenon takes place regardless of the presence of intrapleural adhesions if the

effusion is in relation with the vertebral column. The pleural fluid in the posterior costomediastinal sinus advances to upper segments of the vertebral column in the lateral position of the patient. The increased resonance of the segment in relation to that of the patient in the sitting position is due to the fact that, in the lateral position, the pressure of the effusion rests on the mediastinal septum and not on the lung. The dullness of the anterior costomediastinal sinus may not appear in cases of posterior encysted pleurisy. The pleural fluid passes from the posterior into the anterior costomediastinal sinuses during the postural changes. The results were confirmed by exploratory puncture of the sinuses during the postural changes. The author believes that the passage of the fluid in the costomediastinal sinuses is due to physical conditions of the lung, topographic conditions of the organ in relation to the anterior costomediastinal sinus, diminished pressure of the pathologic lung by the gravitational displacement of the heart during the postural change, and changes in pressure of the fluid from pressure on the lung to pressure on the mediastinal septum.

Prensa Médica Argentina, Buenos Aires

24: 283-332 (Feb. 10) 1937. Partial Index

*Short Distance Roentgen Treatment in Cancer. A. H. Roffo and V. Del Giudice.—p. 283.

Pyloric Stenosis: from Compression in Lymphatic Tuberculosis. J. J. Beretervide, R. Savage and R. A. Pereira.—p. 297.

Continuous Partial Epilepsy: Case. O. Luque and P. Audap-Soubie.—p. 302.

Cardiac Hydatidosis: Case. R. Gonzales Bosch and D. Mosto.—p. 308.

Emotions: Etiologic Role in Heart Diseases. R. Chaminad.—p. 324.

Short Distance Roentgen Treatment of Cancer.—Roffo and Del Giudice administered roentgen irradiations from a short distance, using a tube of the Chaoul type to a group of patients suffering from advanced carcinoma or sarcoma. The focal distance varied between 3 and 5 cm., the tension was 60 kilovolts and the intensity varied between 3 and 4 milliamperes. When the lesions were extensive they were divided in several fields for irradiation. The patients were given the irradiations in fractional doses of 325 roentgens and received a total dose that varied between 2,380 and 14,730 roentgens. The treatment lasted for two or two and a half months. At what intervals the irradiations were given is not specified by the authors. The results were satisfactory in all cases. The tumors disappeared, the ulcers were healed and there was improvement in the general condition of the patients. The treatment is particularly indicated for cancer of the skin, the mucous membranes, the mouth, the fauces and the female genitalia, in which the x-ray tube can be placed in close contact with the cancerous tissues. Some patients obtained satisfactory results from the treatment in cancer of the larynx (which was irradiated through the skin of the neck), in tumoral metastases of the neck from cancer of the larynx and in cancer of the breast. The authors believe that the results of the treatment are due to the increased amount of roentgens that come in contact with the cancerous tissues because of the proximity of the focus to the lesion, to the effect of soft and short wave irradiations and especially to the action of cathode rays.

Revista de Medicina y Cirugía de la Habana, Havana

42: 61-126 (Feb. 28) 1937

*Diarrhea in Malaria. P. A. Sainz.—p. 61.

Syphilis in Surgical Diseases. I. Ferrer.—p. 70.

Crenotherapy: History. V. Santamarina.—p. 83.

Diarrhea in Malaria.—Sainz reports five cases of postprandial diarrhea in adults whose recovery was induced by a combined treatment of atabrine and arsphenamine in small doses, the amount of which is not specified. The author believes that the diarrhea was caused by latent malaria with gastro-intestinal localization. In cases of refractory diarrhea in which syphilis, cancer and parasitic infestation are excluded, the presence of malaria should be sought in the past history of the patient. It is advisable to induce spleen contraction by epinephrine injection or expression of the tonsils (the so-called amygdalin test) to induce passage of malarial parasites into the blood with consequent development of a febrile malarial attack, which gives the clue of the malarial etiology of the gastro-intestinal disturbance.

Archiv für klinische Chirurgie, Berlin

187: 675-804 (Jan. 25) 1937. Partial Index

Gastrooduodenal Ulceration After Total Diversion of the Bile. H. Hark.—p. 675.

*Experience with Acute Pancreatitis. A. Mahner.—p. 691.

Syphilitic Contracted Stomach. E. Fenster.—p. 705.

Treatment of So-Called Chronic Mastitis. H. Weber.—p. 715.

*Results with Malignant Tumors of the Mouth. H. R. Schinz and A. Zuppinger.—p. 729.

Acute Pancreatitis.—Mahner reports nineteen cases of acute pancreatitis which he observed and emphasizes a preference for the conservative treatment. Operation was performed in four of the cases because of uncertainty as to the diagnosis. The four patients died. Of the fifteen cases in which conservative treatment was administered six were either complicated by or followed obstruction of the common duct. The high diastase content of the urine of the relatively mild cases, as contrasted with the much lower content of some of the severe cases, suggests that there is no parallelism between the diastase content and the severity of the case. On the other hand, increasing diastase content of the urine is proof of an organic disease of the pancreas. The author believes that the natural defense mechanism is capable of taking care of the secondary infection following the acute pancreatic necrosis and therefore he is opposed to surgical intervention at this stage of the disease as well. Operation on the biliary tracts is indicated when it can be proved that they are the direct cause of pancreatitis; the author, however, warns against its performance too soon after the subsidence of acute pancreatitis. The operative intervention may, as in one of his cases, prove to be more dangerous to the pancreatitis than the gallstone disease. He suggests an interval of three months during which the patient is to be carefully supervised and kept on a strictly fat-free diet. Wohlgemuth's determination of the diastase content of the urine is of great diagnostic value in acute pancreatitis. For the cases of somewhat longer duration the Rona and Michaelis serum lipase reaction is of value. The conservative treatment consisted in preliminary fasting days, as advised by Gustav von Bergmann, permitting lightly sugared tea, followed by a fat-free carbohydrate diet.

Malignant Tumors of the Oral Cavity.—Schinz and Zuppinger review the results obtained at the Roentgenologic Institute of the University of Zurich in the treatment of malignant tumors of the epipharynx, mesopharynx, hypopharynx and larynx. For tumors in this localization the authors consider protracted fractional distance irradiation the method of choice. Surgical treatment alone is no longer permissible with the exception of the case of laryngeal fissure in small cancers of the vocal cords. The close range treatment, in the form of radium implantation or the intra-oral radium pack, is to be considered only in tumors of the soft palate uncomplicated by metastases. Electrocoagulation in later combination with radium implantation is utilized as an aid in the treatment of small residual tumors or recurrences of small size. Regional lymph nodes are treated by irradiation. Primary surgical removal is not practiced. The principal advantage of the distance irradiation carried out in the form of prolonged fractional treatment is the complete absence of deforming effect. Of the 115 cases treated, fifty-one were tumors of the movable portion of the tongue, thirty-one of the floor of the mouth, eleven of the buccal mucosa, thirteen of the alveolar process and gum, five of the hard palate and four extensive ones of the oral cavity whose origin could no longer be determined. Hornified flat cell carcinomas predominated. Other types were occasionally seen in tumors involving the hard palate. The authors consider radium implantation in the primary tumor and later removal of the lymph nodes, followed by irradiation, the method of choice in carcinoma of the movable portion of the tongue. Protracted fractional distance irradiation alone, with a later radium implantation in the remnant of the tumor, was employed in the advanced stages of the disease. For small tumors of the floor of the mouth the authors recommend, besides radium implantation, the use of a radium pack and protracted fractional distance irradiation for the advanced stage. The same treatment is applicable to the carcinomas of the buccal mucosa. The treatment of the tumors of the hard palate depends to a great extent on the histologic character of the growth. More or less roentgen resistant tumors, such as gland carcinomas,

should be operated on. Protracted fractional distance irradiation is the only method to be considered in the treatment of diffuse tumors of the oral cavity. More than half of their cases presented an advanced stage of the disease with extensive growth and frequently with regional metastases. Thirty-nine cases of oral neoplasm were treated between 1919 and 1928, but in only twenty was the treatment completed. Seven of the patients were alive one year later, five after three years and five after five years. Of the last five patients only one was treated exclusively by surgery. During the period 1929-1935, seventy-six patients were treated. In sixty-one the treatment was completed. Of forty, thirteen survived a period of three years, and of sixteen, two survived a period of five years. The relative three and five year symptom-free period for the group treated between 1919 and 1928 amounted to 25 per cent. The completely free three year period for the group treated between 1929 and 1933 amounted to 32 per cent, and the relatively free to 40 per cent. The results obtained with primary irradiation followed by later surgical interventions were better than those obtained by primary operation and later irradiation. Two patients out of thirty-two were symptom free after a three year period under the latter treatment, while with the former sixteen out of forty-nine were symptom free at the end of three years. The protracted fractional distance irradiation is capable of giving permanent results with extensive tumors of the oral cavity. Of twenty-two cases of carcinoma of the buccal mucosa, seven were symptom free for from one to four years.

Medizinische Welt, Berlin

11: 167-198 (Feb. 6) 1937. Partial Index

Lymphogranulomatosis: 1. History and Etiology; Gordon Test. V. Schilling.—p. 167.

*Traumatic Etiology of Acute Yellow Atrophy of Liver. R. Peter.—p. 170.

Importance of Raw Diet in Dietetic Therapy. K. Eimer.—p. 174.

Aseptic Meningo-Encephalitis with Mild Course. H. Maurer.—p. 179.

Treatment of Postoperative Retention of Urine. G. Stupperich.—p. 182.

Traumatic Etiology of Acute Yellow Atrophy of Liver.

—Peter shows that from the etiologic point of view acute yellow atrophy of the liver is a complicated process, with the cumulative effect of several factors. It appears that the condition of the hepatic cells is even more important than the type and mode of action of the eliciting factor. Trauma is one of the many factors that may play a part in the pathogenesis of acute yellow atrophy of the liver. The author demonstrates this in a case from the literature and in a case of his own observation. The latter case concerned a man, aged 67. During a fall, the patient's abdomen had been forced against the edge of a wooden box. No definite diagnosis was reached on the basis of the clinical aspects, but acute yellow atrophy of the liver was taken into consideration. The patient died and the necropsy corroborated the existence of an acute yellow atrophy of the liver. In the concluding evaluation the author expresses the opinion that, even in the cases in which the acute yellow atrophy of the liver has a causal connection with a trauma, the condition of the hepatic cells plays a part. The trauma sensitizes the hepatic cells for substances that previously had only a latent toxicity.

Zentralblatt für Gynäkologie, Leipzig

61: 369-432 (Feb. 13) 1937. Partial Index

*Roentgenologic Determination of Length of Child in Uterus. H. Wegrad.—p. 373.

Chief Problems of Short Wave Therapy in Gynecologic Inflammations. E. Raab.—p. 384.

Trophoneurotic Changes of Skin Following Lumbar Anesthesia. H. Bělohradský.—p. 390.

Mortality in Surgical Treatment of Gynecologic Disorders. R. L. Schub.—p. 405.

Determination of Length of Child in Uterus.—Wegrad

shows that only the measurement of the vertebral column, more specifically the part extending between the first cervical and the fifth sacral vertebrae, is suitable for this purpose. However, to compute the total length of the child it was necessary to determine a definite ratio between the total length of the child and the distance between the first cervical and the fifth sacral vertebrae. This the author did by measurements on a large number of new-born infants. He found that the ratio averaged about 2.29, the use of which can reveal in the individual only

an approximate result. The focus-screen distance is 125 cm. Before the exposure is made, the diameter of the prone woman is measured at the level of the central ray. The length of the vertebral column (between the two points) is measured on the x-ray film and the true length is computed according to the following ratio: true length is to film length as focus-screen distance minus half the diameter of the woman is to focus-screen distance. The resulting figure multiplied by 2.29 gives the total length of the fetus. The author discusses the possible sources of error. The correctness of the method can be determined only if delivery takes place within the first three days after the roentgen examination. Control measurements on fifty new-born infants revealed that in 84 per cent the difference between computed length and actual length was less than 1 cm.

Wiener klinische Wochenschrift, Vienna

50: 243-274 (Feb. 26) 1937. Partial Index

Microchemical and Microbiologic Problems in Cancer Research. A. von Christiani.—p. 243.

Traffic Accidents and Alcohol. F. Starlinger and R. Scholl.—p. 247.

Qualitative Thrombocytic Blood Picture in Chronic Myeloid Leukemic Reaction (Myeloid Leukemia) on Basis of Eleven Observations. J. Arneht.—p. 249.

*Deallergization in Hay Fever by Means of Papainized and Peptonized Grass Seeds. E. Urbach.—p. 252.

Clinical Recognition of Hemorrhages Caused by Excessive Production of Estrogenic Hormone. R. Joachimovits.—p. 257.

Deallergization in Hay Fever.—Urbach calls attention to the shortcomings of desensitization of hay fever patients by injections of pollen proteins and then describes a new method. Studies on animals and on human subjects proved that it is possible to improve or counteract hay fever by the oral administration of seed proteins that have been treated with papain or peptone. Preparations of seed proteins containing the proteins of several types of grasses are designated as "polysemims." Several different types of such polysemims have been prepared. For the treatment of hay fever patients who are sensitive to the pollens of various cereals such as rye, wheat or maize, "frumins" were prepared from the brans of these cereals, and "florins" were prepared from the flowers of certain trees for those sensitive to the pollens of these trees. The determination of the types of pollens that cause the hay fever in the individual case is likewise done differently. Whereas formerly it was done by cutaneous or intracutaneous tests, it is now done by the nasal pollen test. Since the aforementioned protein preparations are active only in the fasting stomach, the author recommends that the tablets be given four times daily: one hour before breakfast, one hour before the noon meal, one hour before the evening meal and again at 11 o'clock at night. If the patient is sensitive to grass, cereal and tree pollens, polysemims, frumins and florins are given. Since the sensitivity to grass pollens is usually predominating, the author recommends three tablets of the polysemims at each medication, but only two tablets each of the other two preparations. The tablets are given pulverized in water, to which either the juice of half a lemon is added or from 1 to 2 teaspoonfuls of an acid mixture consisting of 25 Gm. each of concentrated hydrochloric acid and of dry pepsin with distilled water to make 200 Gm. Patients with hyperacidity do not tolerate the acid mixture and are given the protein preparations alone. The author stresses the following as the advantages of this treatment: the oral medication, harmlessness, painlessness, elimination of the time-consuming preseasonal treatment and possibility to effect a deallergization by a systematic treatment of three or four weeks' duration.

Polska Gazeta Lekarska, Lwów

16: 173-192 (March 7) 1937

*Chronic Articular Diseases Treated with Fluorine Salts. J. W. Jankowski.—p. 174.

Is It Necessary to Perform Cesarean Section Without Relative Indication? B. Engländer.—p. 177.

Social-Pathologic Significance of Rheumatism and Its Conquest. Marian Kowalski.—p. 179.

Sachs-Witebsky's Reaction in Diagnosis of Syphilis. Z. Warcewski.—p. 182.

Chronic Articular Diseases Treated with Fluorine Salts.—Jankowski reviews the literature on the use of fluorine salts in the treatment of chronic articular diseases and describes seventeen cases which he has treated and in which he has observed beneficial results. After all known methods

of therapy had been exhausted without obtaining any benefit, he tried a 1 per cent watery solution of sodium fluoride. At first he administered orally 5 drops twice a day and then increased the dosage to 10 drops and later to 20 drops three times a day. He found that these doses may be given for months without fear of injury. In some patients the treatment was interrupted for a few days on account of gastric irritation, weakness or vertigo. All cases were notably improved, but it is too early to foretell final results. The calcium level of the blood was studied in four cases and was observed to remain unchanged.

Problemy Tuberkuleza, Moscow

Pp. 1-160 (No. 1) 1937. Partial Index

Significance of Lymphogenous Phase in Development of Bronchogenous Tuberculosis. V. I. Puzik.—p. 19.

Effect of Sensitivity on Tuberculosis. I. A. Kusevitskiy.—p. 29.

*Ligation of Pulmonary Veins as Method of Hyperemic Treatment of Pulmonary Tuberculosis. L. K. Bogush.—p. 59.

*Velocity of Circulation in Tuberculous Patients. F. V. Shebanov.—p. 86.

Ligation of Pulmonary Veins in Pulmonary Tuberculosis.—On the basis of eleven ligations of pulmonary veins, Bogush concludes that access to the root of the lung and ligation of the vein is technically quite feasible after resection of the cartilage and of a portion of the third rib. The operation does not present great technical difficulties. He emphasizes at the same time that the ligation of a thick short venous trunk intimately connected with the pericardium, the narrow operative field, the presence of scars and adhesions about the root, the cough reflex whenever the bronchus is compressed and the cardiac pulsations call for delicate manipulations. Complete ligation of the pulmonary vein in tuberculous patients does not produce serious alterations of any kind. In the presence of limited involvement there is noted, in the first days and months after the ligation, a lowering of the temperature, diminution of the cough and of the amount of the sputum, improvement in the general condition and appetite, marked diminution of the catarrhal signs and decrease or disappearance of tubercle bacilli from the expectorations. The author concludes that pulmonary vein ligation is a justifiable surgical intervention in the presence of fresh lesions limited to one lobe and not marked by great destruction. In the presence of an extensive destructive process with copious expectoration and high temperature, vein ligation may be useful as a preliminary procedure to the operation of thoracoplasty in order to reduce the secretion, lower the patient's temperature and improve the general status.

Velocity of Circulation in Tuberculous Patients.—Shebanov utilized the method of injecting 1 cc. of a 10 per cent solution of calcium chloride in the cubital vein to determine the speed of circulation. He performed 300 tests in 120 patients exhibiting a variety of types of pulmonary tuberculosis and subjected to various therapeutic regimens. The average speed, as measured by the time elapsed between the injection and the point at which the patient experiences a burning sensation at the root of the tongue, amounted to 12.7 seconds. According to the author, changes in the velocity depend on the toxic action on the circulatory system and on the mechanical alterations following active surgical interventions. These alterations constitute an objective criterium as to the permissibility or the limit of such interventions. A pronounced toxemia causes slowing of the circulation by depressing the cardiovascular system. Artificial pneumothorax increases the velocity of circulation by diminishing the toxemia and the territory of the lesser circulation. Functional adaptability of the circulatory organs determines the limit of acceleration of the blood stream. A sharp change from acceleration to slowing of the blood stream signifies an untoward effect of gas insufflation on the circulatory function. Too great acceleration does not guarantee sufficient aeration of the blood and does not remove anoxemia. Phrenico-exeresis accelerates the blood stream in the presence of fresh lesions and in the absence of a prolonged toxic depression of the heart. However, in the presence of functional cardiac insufficiency phrenico-exeresis may lead to further slowing of the blood stream. Determination of the blood stream velocity made before a thoracoplasty or between different stages of operations enables one to detect a latent

insufficiency of the cardiovascular apparatus and to forewarn against the risk of the operation. Pleurisy with a serous, and particularly with a purulent, exudate slows the circulation as a result of toxemia. Determination of the velocity can be used as an index to the proper time for evacuation of the exudate. The calcium method of determination of the velocity of circulation is useful as an index of prognostic significance as well as an index of therapeutic measures.

Ugeskrift for Læger, Copenhagen

99: 125-154 (Feb. 4) 1937

On Suggestion. P. J. Reiter.—p. 125.

*Immunization Against Diphtheria with Purified Anatoxin: Experiences in Immunization of More Than Six Thousand Children in Iceland. N. Dungal.—p. 134.

Thrombopenic Purpura After Treatment with Arsphenamine, with Recovery After Blood Transfusion: Case. A. Stigaard.—p. 138.

Immunization Against Diphtheria with Purified Anatoxin in Iceland.—Dungal says that diphtheria, which was unnoticed in Reykjavik for eight years, suddenly began to appear early in 1935. Since the Schick tests showed extensive susceptibility, immunization with anatoxin was carried out in 65.5 per cent of the population up to 13 years of age. The antigens used were Ramon's anatoxin and, in most cases, purified anatoxin (Schmidt) with aluminum hydroxide. The latter gave better results, with local reaction in 36.8 per cent and rise in temperature in 39.6 per cent. The immunization percentage was lower than in other countries, presumably because the stimuli of latent infection were lacking.

99: 155-184 (Feb. 11) 1937

Chronic Acetanilid Intoxication as Result of Continued Use of "Mixed Headache Powders" or Similar Compositions. E. Lundsteen, E. Meulengracht and A. Rischel.—p. 155.

*Treatment of Arterial Hypertension with Rhodan. K. H. Fremming.—p. 162.

Bradycardia in Young Man: Case. E. Rud.—p. 167.

Treatment of Arterial Hypertension with Rhodan.—Fremming reports that twenty-two patients, all with systolic blood pressure of more than 200 mm., were ambulant treated with potassium and sodium rhodan. A reduction of more than 60 mm. in systolic blood pressure resulted in three, of between 40 and 60 mm. in fifteen and of between 20 and 40 mm. in four. The average decrease was 49 mm. in the systolic and 20 mm. in the diastolic blood pressure. Six of the patients were completely relieved of symptoms, ten noted a definite improvement, and in six the condition was practically unchanged. During treatment the rhodan content of the serum was controlled by a photometric method devised for this purpose, and the dosage adapted accordingly. The optimal rhodan concentration in the serum during treatment was from 7 to 12 mg. per hundred cubic centimeters. The dosage required for this concentration varied individually from 0.15 to 0.5 Gm. daily. No grave complications were seen during the treatment.

99: 185-212 (Feb. 18) 1937

Congenital Difficulties in Reading in School Children. H. Rønne.—p. 185.
*Review of Bactericidal Substances in Normal Blood Especially in Man, Together with Investigations on Thermostable Bactericidal Substance, Particularly Occurring in Serum of Fever Patients: Preliminary Report. P. Hjorth.—p. 192.

Bactericidal Substances in Normal Blood.—Hjorth discusses the thermolabile alexin, the thermostable B-lysin and the bactericidal leukocyte substances (leukins or endolysins), and the thermostable bactericidal substance discovered by Wulff, especially to be found in serum from fever patients. In his personal investigations he found twenty-eight out of thirty strains of meningococci sensitive to the substance, also four apathogenic, gram-negative cocci and a Staphylococcus albus strain. Investigations in series in patients with fever showed that the thermostable bactericidal substance appears a few days after the fever sets in and does not disappear until the temperature has been normal for a few days. This property in the fever serum disappears only on heating to 68 C. for half an hour. A serum thus inactivated can be reactivated by the addition of small quantities, in themselves inactive, of active serum or of serum heated to 56 C. for half an hour. So far its effect has been studied only in meningococci. The author is inclined to class the substance in question with the B-lysin group.

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LESIONS OF "ENCEPHALOMYELITIS" AND MULTIPLE SCLEROSIS

VENOUS THROMBOSIS AS THE PRIMARY
ALTERATION

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BOSTON

The experimental production in animals of venular thrombi scattered throughout the body has been reported by Flexner,¹ Kusama² and others following the administration of a great variety of substances. These include homologous and heterologous serum, organ extracts, bacterial filtrates, bacterial suspensions, colloidal materials, fat solvents, and salts of some heavy metals. The thrombi are of various types, some consisting chiefly of agglutinated platelets, others chiefly of stromas, others of strands of fibrin or amorphous material. Evidence has been submitted by Kusama² to show that these thrombi may redissolve in the course of time without becoming organized. Hoefer,³ working at the Neurological Unit, is in the process of repeating the fundamental observations and finds that of the various fractions of heterologous plasma the globulin (fig. 1), and that of the various organ extracts lung extract of Mills⁴ is perhaps the most potent. Campbell and Alexander⁵ have produced amorphous capillary and venular thrombi in the brain in experimental local anaphylaxis.

Similar thrombi in both fresh and advanced stages are frequently observed in human pathologic studies, although surprisingly little attention has been paid to them. I have been unable to find any systematic study of them, although they are familiar to every pathologist. They constitute a problem which is entirely different from that of thrombosis in large vessels, such as the heart or aorta, since the flow of blood stops entirely in the venule or capillary once the clot forms. They are therefore apt to lead to necrosis of the vessel wall rather than to organization and recanalization.

Venular thrombi occur particularly in the course of infectious diseases (fig. 2) and indeed are such a commonplace finding that they often escape comment. They have been more thoroughly studied in connection

with certain types of nephritis⁶ and appear to provoke a chronic inflammatory reaction in the kidney. They have also been reported in late death after carbon monoxide poisoning,⁷ and I have found them in a case of nitrous oxide poisoning.

Little attention has been paid to the occurrence of such thrombi in the brain, although it might well be expected that more serious damage should be produced by vascular obstruction there than in any other organ. In the earlier experimental work convulsions, coma and paralyzes were regularly reported, but no histologic examination of the nervous system was given. Thrombosis of veins of the white matter, producing demyelination, was reported by Meyer⁷ and others in a carbon monoxide poisoning. Hoefer's³ and Campbell and Alexander's⁵ experiments were directed toward a study of the cerebral lesions, and they show that clots are as easily provoked in the central nervous system as in any other organ. Indeed, there is some reason to believe that the tortuosity of the cerebral veins and the slowness of the flow within them predispose them to thrombosis.

THE RESULTS OF VENOUS OBSTRUCTION IN THE BRAIN

The effects of venous obstruction in the central nervous system have been studied experimentally⁸ and pathologically in this laboratory. The two sets of observations lead to the same conclusions. The stasis affects the white matter more than the gray. The commonest lesion consists of a swelling and disintegration of myelin upstream along the vein (fig. 3), accompanied in the severer lesions by some swelling and fragmentation of axis cylinders. There is a diffuse proliferation of astrocytes in the vicinity (fig. 4). At a later stage, phagocytes containing products of parenchymal destruction accumulate within the adventitial sheaths of vessels. Occasionally cells resembling lymphocytes are found.

This histologic picture, characterized by the predominance of acute exudative phenomena, changes gradually to one in which cellular activity is almost at a standstill. At most a few phagocytes are found within hypertrophied adventitial meshes. The axis cylinders resume a more normal appearance, and it often becomes difficult to be sure that any are missing. The destroyed myelin is apparently never regenerated, and the rough, indistinct edges of the area of myelin loss gradually become smooth and distinct. The glial fibrosis continues to grow more dense at least up to a year after the insult has occurred.

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From the Neurological Unit, Boston City Hospital, and the Department of Neurology, Harvard Medical School.

This is the thirteenth of a series of papers based on investigations the expenses of which were defrayed in part by the Multiple Sclerosis Fund of Harvard University.

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THE LESIONS OF VENOUS THROMBOSIS AND
THOSE OF "ENCEPHALITIS"

Neuropathologists will recognize at once that the acute lesion which has been described corresponds in all its details with that which is considered characteristic of certain types of "encephalomyelitis"; for example, the postvaccinal and postmeasles forms.⁹ In these con-



Fig. 1.—Clot in a cerebral venule of a rabbit that died forty minutes after the intravenous injection of lung extract. The clot consists of red cells caught in a dense network of curved strands of fibrin. Mallory's connective tissue stain, low power.

ditions congestion and thrombosis are almost regularly observed (figs. 5 and 6).¹⁰ Thrombi were present in other organs also in the only case of this type in which I have been able to study them (fig. 2).



Fig. 2.—Thrombus from the liver of a patient dying from an "encephalitis" following tonsillitis. Arrows indicate invasion by endothelial cells. Mallory's connective tissue stain, low power.

The possibility that postinfectious "encephalomyelitis" is an allergic phenomenon has been suggested by Glanzmann,¹¹ van Bogaert¹² and others. The onset of the cerebral symptoms coincides with the development of immunity in a striking manner. The relation of allergy to thrombosis and of thrombosis to the cerebral

changes places the entire sequence in a clearer light. It also becomes easier to understand why these "encephalitis" occasionally occur in a hemorrhagic form and how they are related to the cerebral lesions produced by toxic substances such as arsphenamine, carbon monoxide and nitrous oxide.

THE RELATION OF VENOUS THROMBOSIS TO
MULTIPLE SCLEROSIS

It has long since been pointed out that lesions closely resembling those of the postinfectious "encephalomyelitis" may occur in the course of multiple sclerosis, and a careful comparison of various aspects of the two

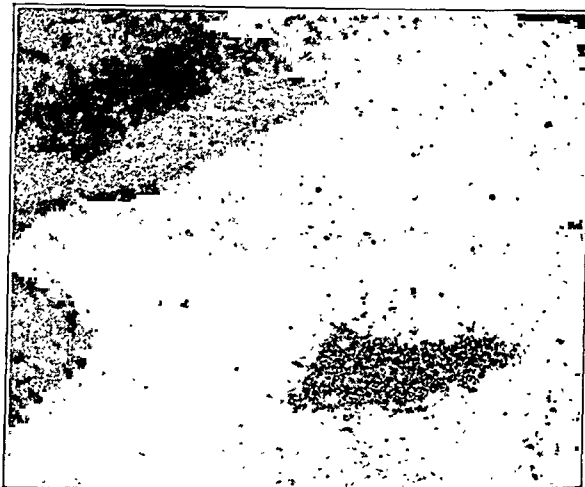


Fig. 3.—Local destruction of myelin fourteen days after experimental obstruction of cerebral venules in a dog. Mallory's connective tissue stain, low power.

groups shows that no sharp dividing line can be drawn between them.¹³ In both conditions, myelin is more damaged than the axis cylinders and can never regenerate in the central nervous system. The axis cylinders are injured or sometimes entirely destroyed in both dis-

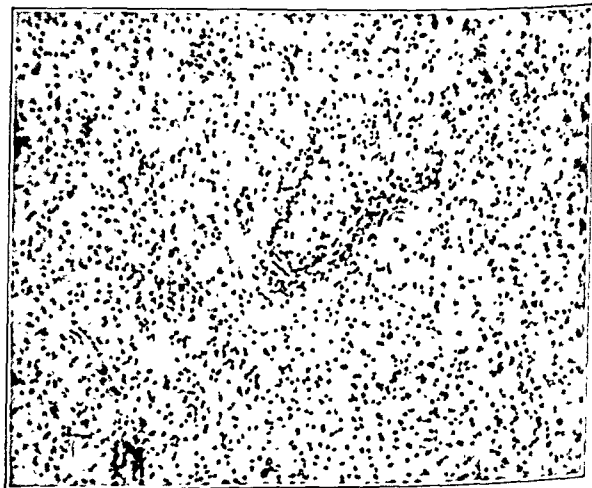


Fig. 4.—Diffuse glial proliferation in the cerebral white matter fourteen days after experimental obstruction of cerebral venules in a dog. Section from the same block as shown in figure 3. Galloxyanin stain, low power.

eases. The intensity of destruction of axis cylinders is greater the more severe and abrupt is the onset of the lesion, and it is therefore usually greater in fatal

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11. Glanzmann, E.: Die nervösen Komplikationen der Varizellen, *Variola und Vakzine*, Schweiz. med. Wchnschr. 57:145 (Feb. 12) 1927.

12. van Bogaert, L.: Essai d'interprétation des manifestations nerveuses observées au cours de la vaccination, de la maladie sérique et des maladies éruptives, *Rev. neurol.* 2:1 (July) 1932.

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cases of "encephalitis" than in some of the mild, chronic lesions of multiple sclerosis. In the majority of sclerotic plaques, however, many axis cylinders are destroyed.¹⁴ A diffuse glial reaction occurs in areas of fresh degeneration in cases of multiple sclerosis, which is entirely comparable to that seen in "encephalomyelitis." At a later stage in both diseases phagocytic cells of various types accumulate about vessels and later still disappear. The glial scarring that gives multiple sclerosis its name is a slow, chronic process which takes place in much the same way in practically all diseases accompanied by loss of myelin; for example, old arteriosclerotic lesions¹⁵ or secondary degeneration.¹⁴ The typical sclerotic plaque is to be regarded, therefore, as a late stage of the lesion of a certain type of "encephalomyelitis."

The theory of the vascular origin of the lesions of multiple sclerosis has recently received support from two unexpected sources. In the first place, Alexander

sent phagocytized blood pigment rather than fragments of spirochetes, as suggested by Steiner.

This point of view is entirely consistent with the intermittent course of remissions and exacerbations



Fig. 5.—Thrombus in a cerebral vein from a case of postvaccinal "encephalitis." Masses of fibrin enclose red cells. Mallory's connective tissue stain, low power. Compare with figure 1.

and Myerson¹⁶ have shown by means of micro-incineration that a local demineralization is a characteristic feature both of anemic foci and of sclerotic plaques, in sharp contrast to the hypermineralization of inflammatory lesions.

In the second place, Blackman¹⁷ has recently repeated Steiner's work¹⁸ on the occurrence of certain cells which take a specific impregnation with silver in multiple sclerosis and dementia paralytica. Blackman finds that these typical cells occur also in areas of cerebral thrombosis, if the patient has survived a week or more (fig. 7). It appears, therefore, that they repre-

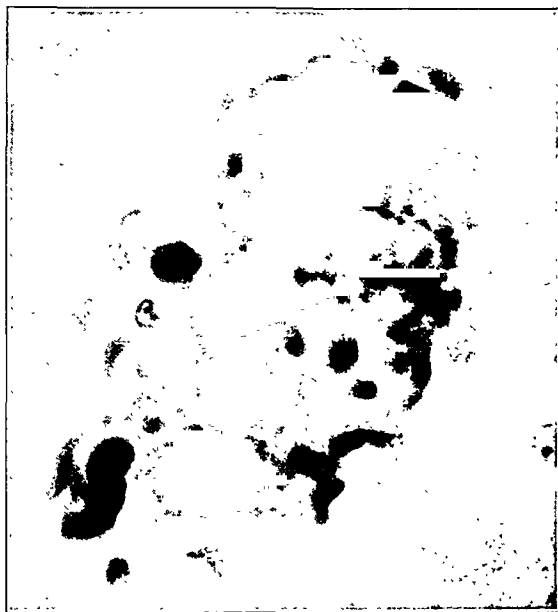


Fig. 6.—Thrombus in a cerebral vein from a case of "encephalitis" following antirabic inoculation. The dark masses apparently represent fibrin. Masson stain, oil immersion lens.

characteristic of multiple sclerosis, and with what is known of the factors precipitating attacks of the disease. In an extensive review of the subject von

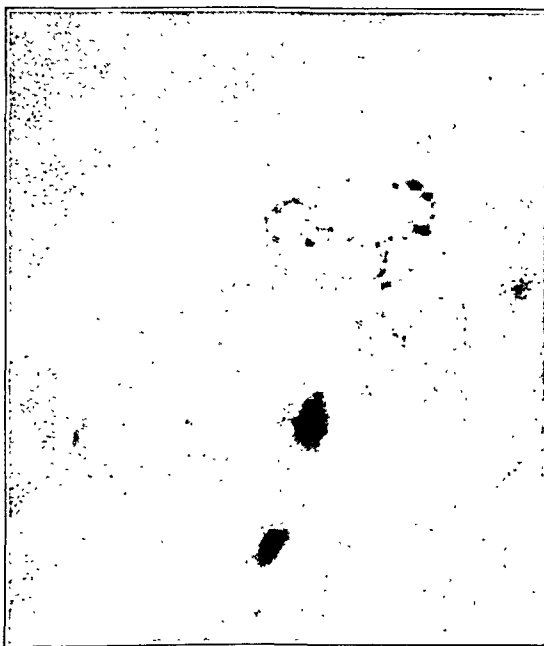


Fig. 7.—Typical "silver cells" about a vessel, from a case of cerebellar thrombosis in which the lesion was approximately two weeks old. Steiner's stain, oil immersion.

Hoesslin¹⁹ lists the exogenous circumstances directly preceding exacerbation in 516 cases as follows: injury and accident, 11.4 per cent; pregnancy and labor, 5.8

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per cent; febrile diseases, 4.2 per cent; overexertion, 3.9 per cent; chilling, 2.3 per cent; fright and emotion, 7.0 per cent, and poisoning, 0.5 per cent.

It is striking that these factors are exactly those which predispose to disturbances of the stability of the blood plasma and to thrombosis.²⁰ Simon and Solomon²¹ have shown that the blood of patients with multiple



Fig. 8.—Typical distorted vessel surrounded by a ring of congested capillaries from an old plaque of multiple sclerosis. From a brain the blood vessels of which were injected with india ink after removal from the skull. Low power.

sclerosis shows an abnormal tendency to coagulation following the administration of adrenal extract or of typhoid vaccine.

Thrombi are found less often in cases of multiple sclerosis than in cases of "encephalomyelitis," doubtless because most of the lesions are older; but they could be demonstrated in five of fourteen cases.²² Other



Fig. 9.—Multiple sclerosis. A necrotic vein, devoid of lumen in this and adjacent sections, lies in a zone of demyelination. A congested vein is seen in the upper left corner. Masson stain, high power.

evidences of vascular obstruction, such as perivascular accumulation of blood pigment and engorgement and tortuosity of vessels, are common, however (figs. 8

and 9). Thrombi also occur in other organs in cases of multiple sclerosis, usually without causing lesions.²² Further reasons have been given elsewhere for considering that the thrombi are primary to the other changes in the lesion and not secondary.²²

SUMMARY

Many of the factors that may lead to a diffuse thrombosis of small veins throughout the body correspond with the recognized antecedents of certain types of "encephalomyelitis" and the onset or exacerbation of some cases of multiple sclerosis. In both these groups of disease, thrombi and other evidences of vascular occlusion are found in relation to the characteristic lesions and in other organs of the body. These lesions correspond closely to the results of experimental and spontaneous occlusion of veins.

It seems probable, therefore, that the primary alteration in certain types of "encephalomyelitis" and multiple sclerosis is an abnormal lability of the blood plasma, which may be caused to clot in venules of the brain (and other organs) by a variety of exogenous (and probably also endogenous) factors.

MECKEL'S DIVERTICULUM

ASSOCIATED WITH INTUSSUSCEPTION AND ADENOCARCINOMA OF ECTOPIC GASTRIC MUCOSA: REPORT OF CASE

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AND

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That there is a persistence of the proximal end of the yolk stalk to form a pouch at its point of union with the intestine in approximately 3 per cent of all individuals has been widely recognized. This pouch is usually referred to as "Meckel's diverticulum" and is a structure of clinical importance because of the rôle it may play in producing intestinal obstruction. Benign ulcerating processes in ectopic gastric mucosa have been described with relative frequency and have been incriminated occasionally as the source of intestinal hemorrhage. The development of malignant lesions in the ectopic gastric mucosa of a Meckel's diverticulum is extremely rare, and for this reason we felt that it was justifiable to report such an incident. So far as we have been able to determine, carcinoma of Meckel's diverticulum has been reported in a limited number of cases. According to Franke,¹ Jores noted a primary carcinoma of the cylindric epithelium of a Meckel's diverticulum and reported this in 1899. Oberndorfer² cited one case in 1907, and other instances of this condition have been noted by Schaetz³ (1925), and by Hertzog and Carlson⁴ (1935).

From the Division of Surgery (Dr. Gray) and the Section on Pathologic Anatomy (Dr. Kernohan), the Mayo Clinic.

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2. Oberndorfer, Siegfried: Karzinome Tumoren des Dünndarms, *Frankfurt. Ztschr. f. Path.* **1**: 426-432, 1907; Ueber die kleinen Darmcarcinome, *Verhandl. d. deutsch. path. Gesellsch.* **11**: 113-116, 1907.

3. Schaetz, Georg: Beiträge zur Morphologie des Meckelschen Divertikels (Ortsfremde Epithelbildung im Meckel), *Beitr. z. path. Anat. u. z. allg. Path.* **74**: 115-224, 1925; Die Magenepithel-Heterotopie des menschlichen Vorderdarms; Zugleich ein Beitrag zum Verständnis von Magenschleimhaut in Meckelschen Divertikeln, *Virchows Arch. f. path. Anat.* **241**: 148-218, 1923.

4. Hertzog, A. J., and Carlson, L. A.: Carcinoid of Meckel's Diverticulum: Report of Two Cases, *Arch. Path. & Lab. Med.* **20**: 577-586 (Oct.) 1935.

20. Pickering, J. W.: *The Blood Plasma in Health and Disease*, New York, Macmillan Company, 1928.

21. Simon, Benjamin, and Solomon, Philip: Multiple Sclerosis: Effect of Typhoid Vaccine and of Epinephrine on Coagulation of Blood, *Arch. Neurol. & Psychiat.* **34**: 1286 (Dec.) 1935.

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REPORT OF CASE

A married woman, aged 37, registered at the Mayo Clinic on Nov. 22, 1933, complaining of vague abdominal pains that had been present at intervals since the birth of her first child, six years previously. The pain had occurred in the epigastrium, in the lower part of the abdomen, particularly on the right, and in the lower part of the back. There seemed to be no relationship to any factor in her daily routine, and there had not been any associated nausea or vomiting. The patient had eliminated fried foods from her diet because she thought they

might be deleterious, and not because of qualitative food distress. It was impossible to obtain a satisfactory description of her symptoms. That chronic nervous exhaustion played an important rôle was apparent, but her general appearance strongly suggested organic disease. The systemic history otherwise was essentially negative.

Her father had died from stroke; otherwise the family history was essentially negative. She had been married seven years; her husband was alive and well, as were their three children. The patient's menstrual periods had always been irregular, but there had not been any menorrhagia.

Physical examination revealed a systolic blood pressure of 122 mm. and a diastolic pressure of 80 mm. of mercury. The patient was a well developed, somewhat undernourished woman who weighed 98 pounds (44.5 Kg.). There was nearly complete diastasis recti abdominis. She had been operated on in 1928, at which time an appendectomy, a partial right oophorectomy and freeing of adhesions had been performed. There was slight tenderness over the right costal margin, and tenderness and a small mass (3 by 1.5 cm.) were noted in the right lower quadrant of the abdomen. The uterus was moderately enlarged and nodular and had pushed the cervix backward. There was an egg-shaped mass about 5 cm. in diameter in the ileocecal region.

Analysis of a passed urine specimen revealed a specific gravity of 1.036, an acid reaction, a moderate amount of albumin, hematuria grade 4 (the patient was menstruating) and only a slight amount of pus. The value for the hemoglobin was 12.6 Gm. for each 100 cc. of blood. The erythrocytes numbered 3,910,000 and the leukocytes 5,400 per cubic millimeter of blood. The Wassermann reaction on the blood serum was negative. The sedimentation rate was 4.5 mm. in half an hour, 14 mm. in one hour and 40 mm. in two hours. Roentgenologic examination of the thorax, stomach, kidneys, ureters and bladder did not reveal any abnormality. There was some deformity of the coccyx. Roentgenologic examination showed that the gallbladder was functioning normally. A roentgenogram of the colon revealed a filling defect involving the ileocecal region at a point that coincided with the position of the palpable mass. The roentgenologist made the note that the changes suggested an extraluminal mass.

Operation was performed Dec. 4, 1933. Exposure through a low midline incision revealed an intussusception of the terminal portion of the ileum, about 14 to 16 inches (35 to 40 cm.) above the ileocecal juncture. The ileocecal region was essentially normal. A portion of bowel that had become invaginated for approximately 8 cm. was easily reduced. When this was accomplished, it was seen that a second intussusception had

occurred in a portion of tissue, which appeared to be a large Meckel's diverticulum. The diverticulum extended at right angles to the wall of the ileum for approximately 5 cm.; it was 2.5 cm. in diameter at the base and about 5 cm. long. At the tip, a portion of the mesentery of the diverticulum had become intussuscepted into the bowel. It was impossible to reduce this, and a segmental resection of the ileum was performed by making an end-to-end anastomosis. In order to insure an adequate lumen of the bowel, an entero-anastomosis was made about 8 inches (20 cm.) from the end-to-end anastomosis. Pelvic examination revealed that the right ovary was somewhat small but otherwise normal. The left ovary was slightly cystic. The uterus was apparently normal. The upper portion of the abdomen was not explored.

The convalescence following this procedure was uneventful, and the patient was able to leave the hospital on the sixteenth postoperative day. Final surgical dismissal was granted on the nineteenth postoperative day. At this time the wound had healed and the general condition of the patient was good.

A letter received from the patient a year later stated that she had not had any severe pain in the region of the operative wound but that she had "a slight discomfort in the right side at times."

Examination of the tissue removed at operation revealed about 3 cm. of ileum. Arising from the middle of this was a Meckel's diverticulum which was 5 cm. long. This had a prominent mesentery, which had become herniated into the ileum along with the inverted diverticulum. The specimen was opened and a fungus-like mass was found to occupy the distal third of the diverticulum (fig. 1), while the middle third had a peculiar granular or cobblestone appearance similar to that which is frequently seen in the wall of the stomach. The proximal third was lined by mucosa of normal ileum. The tissue had been fixed in 10 per cent solution of formaldehyde, and histologic preparations were subsequently made and stained with hematoxylin and eosin and also with the mucicarmine method for mucus.

The mucosa of the ileum and the proximal third of the diverticulum was normal. At the base of most of the glands there were typical Paneth cells with their eosinophil granules. The stroma was edematous and contained some lymphocytes. The muscularis mucosae and the muscle layers were intact and



Fig. 1.—Meckel's diverticulum; proximal third is composed of normal ileal mucosa, middle third consists of gastric mucosa (one may note the "cobblestone" appearance) and the distal third is the site of an ulcerating carcinoma on which an exudate may be seen.

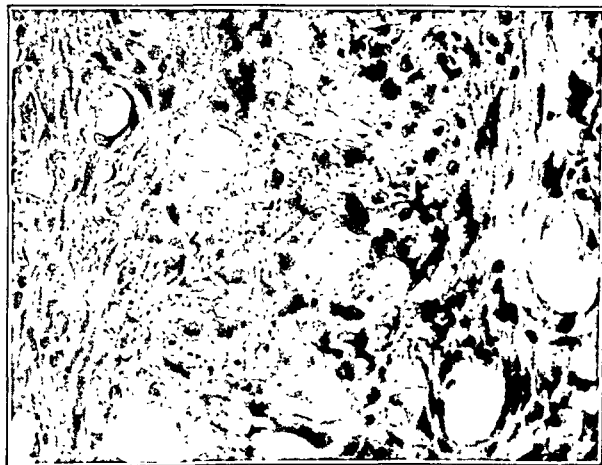


Fig. 2.—Adenocarcinoma involving surrounding tissues; specimen stained with hematoxylin and eosin; slightly reduced from a photomicrograph with a magnification of 350 diameters.

normal except for the presence of slight edema. In the mucosa at the junction of the proximal and middle thirds there was a marked change in the character of the glands and epithelium. The glands were less simple; epithelial cells that contained mucus were not present and there were no Paneth cells. The microscopic appearance was typical of gastric mucosa, except that there were no parietal cells and there was a chronic diffuse inflammation throughout the mucosa. This inflammation was limited to the stroma, while the epithelium of many of the glands was hyperplastic and the glands themselves were irreg-

ular, dilated and tortuous. The muscularis mucosae and the muscular walls of the diverticulum were normal. The histologic appearance of the middle third of the diverticulum was similar to the portion just described. The mucosa was identical to gastric mucosa in which there is an advanced, diffuse, chronic gastritis. Where the inflammation did not directly affect the epithelial cells they were hyperplastic and mitotic figures were common. The entire epithelium was intact and no ulceration was present. The mucosa of the distal third of the diverticulum was much thicker than that of the middle third, and the super-

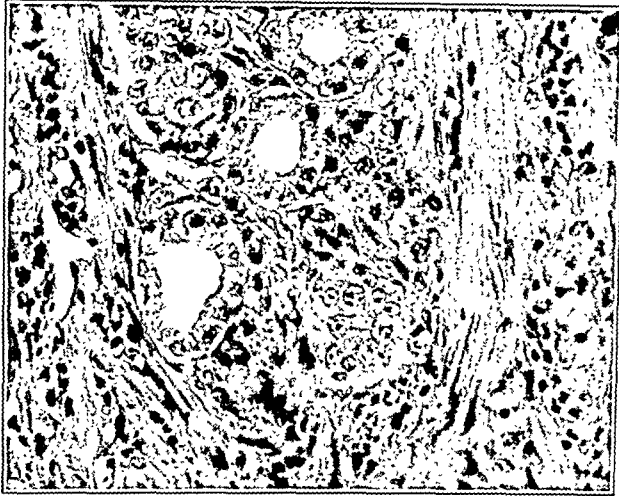


Fig. 3.—Adenocarcinoma, grade 2, invading the muscle of the diverticulum; specimen stained with hematoxylin and eosin; slightly reduced from a photomicrograph with a magnification of 325 diameters.

ficial portion was ulcerated and covered with a layer of fibrin that contained polymorphonuclear cells. The underlying epithelium was very hyperplastic; the nuclei were large and contained prominent nucleoli. Mitotic figures were numerous (fig. 2). In some regions the cells were arranged in the form of glands, which were irregular, tortuous or dilated (fig. 3), while in most places no definite glandular arrangement of the cells was present. The cells were scattered diffusely throughout the stroma and in many places they had grown through the muscularis mucosae. In a few places they had extended down to, and in one or two places they had actually invaded, the muscular wall of the diverticulum (fig. 3). They had not penetrated to the peritoneum. Along with the downgrowth of the epithelium there was a chronic inflammation extending from the ulcerated surface of an adenocarcinoma (fig. 4). The carcinoma was identical with slowly growing adenocarcinomas of the stomach. The entire middle third of the diverticulum consisted of chronically inflamed heterotopic gastric mucosa. This portion gradually merged into the distal third, which was the site of an adenocarcinoma. (We are unaware of any case described in the literature in which an annular heterotopic gastric tissue occupied the middle third of the diverticulum while the proximal and distal thirds were composed of iliac mucosa.) Moreover, there was a gradual transition between the heterotopic gastric mucosa and the carcinoma at the tip. In stomachs in which carcinoma is present there is usually a chronic diffuse gastritis associated with a marked hyperplasia of the gastric mucosa. The histologic observations in this case were identical with those usually occurring in cases of carcinoma of the stomach.

COMMENT

Heterotopic gastro-intestinal tissue has often been found in Meckel's diverticula. Frequently, heterotopic gastric mucosa has become ulcerated and has produced hemorrhages, and perforation occasionally has resulted and has led to fatal peritonitis. This subject has recently been the basis of an excellent review by Schullinger and Stout,⁵ who also describe an adenoma

of Meckel's diverticulum that was composed of gastric and duodenal mucosa. This adenoma was not malignant.

Carcinoid tumors occasionally have been found in Meckel's diverticula and there are numerous reviews of these in the literature. We have had an opportunity to examine two such tumors, which have been described by Hertzog and Carlson of the clinic. The gross and microscopic appearance of these small tumors is characteristic. They are found most commonly in the appendix and small intestine. Several that have been observed have become malignant and have metastasized to the mesenteric lymph nodes and liver. However, the metastatic tumors retain most of the characteristics of the original growth and are readily distinguished from most other types of carcinoma.

The case we have described seems to us to be unique in that the diverticulum was removed while the carcinoma was sufficiently small to allow us to observe the origin of the carcinoma from the heterotopic gastric mucosa. The portion of the heterotopic tissue that had not been replaced by carcinoma was typical of gastric mucosa. There was chronic diffuse inflammation throughout the mucosa and the epithelium was hyperplastic, while the glands were tortuous and irregular. The hyperplastic appearance suggested a precancerous condition, which is often seen in cases of chronic gastritis.

A survey of the literature on neoplasms of Meckel's diverticula reveals that most tumors are carcinoid tumors, although several sarcomas of various types have been observed. A few adenocarcinomas have been reported. Wiseley⁶ (in 1931) found an adenocarcinoma of Meckel's diverticulum while exploring the abdomen prior to the repair of a hernia. The wall of the diverticulum was nodular and thickened down to

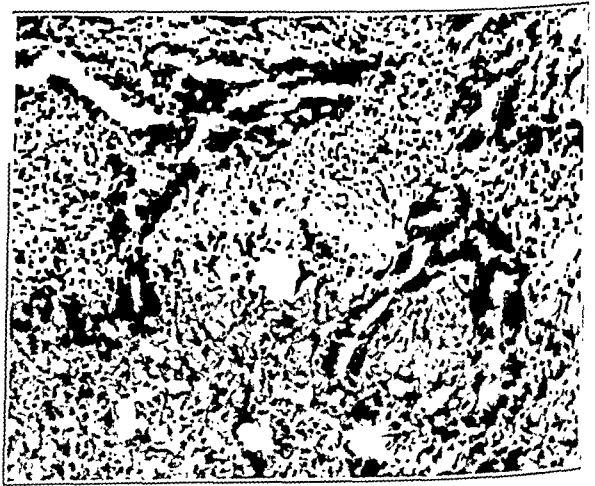


Fig. 4.—Adenocarcinoma in which cells are attempting to form glands, which are irregular and are spreading through the muscularis mucosae; one may note the hyperplastic epithelium. Specimen stained with hematoxylin and eosin; slightly reduced from a photomicrograph with a magnification of 210 diameters.

and including the wall of the small intestine. The involved portion of this intestine was resected. The diagnosis was a medullary carcinoma. No metastasis was found at necropsy. In 1932 Michael and Bell⁷

6. Wiseley, A. N.: Medullary Carcinoma of Meckel's Diverticulum. *J. A. M. A.* 96: 1949-1950 (June 6) 1931.

7. Michael, Paul, and Bell, H. G.: Primary Adenocarcinoma Arising in a Meckel's Diverticulum, *Surg., Gynec. & Obst.* 54: 95-97 (Jan.) 1932.

5. Schullinger, R. N., and Stout, A. P.: Meckel's Diverticulum. *Arch. Surg.* 28: 440-466 (March) 1934.

described an adenocarcinoma of the ileum, which originated in a Meckel's diverticulum. The carcinoma had extended through the muscularis mucosae into the outer wall of the diverticulum and adjacent ileum, and according to the description it appeared to be a highly malignant growth. The patient recovered following a resection and no mention of further extension or metastasis was made. Franke in 1933 reviewed the literature and reported an additional case in which an adenocarcinoma of a Meckel's diverticulum had extended through the intestinal wall and into the peritoneal cavity. Most of the carcinoma was necrotic, but in some places mucus-containing glands were present. There was no mention of metastasis to mesenteric lymph nodes or to the liver. The same year Brown⁸ described a case in which a mass was attached to the ileum. There was no mention of the presence of a Meckel's diverticulum and the description was not typical of an adenocarcinoma, but the tumor could be considered a sarcoma. The tissue was not examined for mucus.

In none of these cases was there any mention of heterotopic tissue in the Meckel's diverticulum; however, it is possible that one or more of these carcinomas arose from preexisting heterotopic tissue and that when the neoplasm had grown to sufficient size to produce symptoms it had completely destroyed the tissue from which it arose.

SUMMARY

In a case of intussusception of the terminal portion of the ileum there was a second intussusception, which was an inverted Meckel's diverticulum. The distal two thirds of the mucosa lining this diverticulum consisted of heterotopic gastric mucosa. Examination of this mucosa revealed chronic inflammation. The distal third of the heterotopic gastric mucosa had been replaced by an adenocarcinoma, grade 2 on a basis of 4. Ulceration and infection of the carcinoma had occurred and the tumor had grown through the muscularis mucosae but had not extended to the peritoneum. The patient recovered and was living one year after removal of the tumor and there was no evidence of metastasis. This was a unique case in that the diverticulum was removed during the early growth of the carcinoma before it had destroyed the heterotopic gastric mucosa from which it arose.

8. Brown, Rëxwald: Carcinoma of Meckel's Diverticulum, *S. Clin. North America* 13: 1283 (Dec.) 1933.

Trust Them Not, Young Man.—But the young doctor, the new doctor, in a gossip house, must never be off his guard. He has seen and prescribed for his patient and has said all that need be said to the friends; and there is tea, and what seems a favorable opportunity for extending the practice. Trust them not, young man: put your fingers in your ears, and flee from the City of Destruction of Reputations. If you must stay, do not stay long, and keep the door of your lips. Talk of the patient, of the weather or of the proposition, which will as surely as the bread and butter be handed to you, that there is a good deal of illness about. Avoid all topics of Church and State, quote neither poetry nor prose, give neither censure nor approval to music and the drama, hide your liking for any art but your own. Leave behind you, for gossip to lap, a saucerful of the milk of human kindness. Never mind about producing a favorable impression; produce this one impression, that you know your work, and that it will not be your fault if the mixture fails to relieve the patient upstairs: and then flee.—Paget, Stephen: *Confessio Medici*, New York, Macmillan Company, 1931.

ANTIPNEUMOCOCCUS RABBIT SERUM AS A THERAPEUTIC AGENT IN LOBAR PNEUMONIA

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Antipneumococcus serum is at present the only specific therapeutic agent useful in the treatment of lobar pneumonia. The first conclusive evidence of the effectiveness of specific serum in type I pneumococcus pneumonia was brought by studies made in the Hospital of the Rockefeller Institute in 1912-1913.¹ During the twenty-four years since the publication of this report the value of type I antipneumococcus serum has been conclusively proved by studies in this hospital,² and these results have been confirmed and extended by numerous workers.³

In type II pneumococcus pneumonia the value of antipneumococcus serum is somewhat less definite, but the reports of Bullowa,⁴ Cecil and Plummer,⁵ Finland and Sutliff⁶ and Finland and Dowling⁷ indicate that the mortality rate may be reduced by the early administration of adequate amounts of serum.

The results of specific serum therapy in type VII and type VIII pneumococcus pneumonias have been favorable although perhaps not quite as satisfactory as in the case of type I.⁸

Since its introduction, therapeutic type-specific antipneumococcus serums have been produced by immunization of horses. Although, as has been stated, its use has been attended with good results in a number of different types of pneumococcal pneumonia, it has always possessed certain inherent characteristics that have not been entirely desirable. These are:

1. Antipneumococcus horse serums rarely possess high mouse protective titers. On the average raw type I antipneumococcus horse serum contains approximately 500 mouse protective units per cubic centimeter. An occasional animal may produce serums of twice this potency, but this is uncommon. Since the amount of antibody is not great and since large amounts of antibody are necessary for the treatment of pneumonia, it has been useful to employ concentration methods. Because of technical procedures involved, concentration has added materially to the final cost of serum.

2. Intravenous injections of antipneumococcus horse serum occasionally cause anaphylactic or anaphylactoid reactions and,

From the Hospital of the Rockefeller Institute for Medical Research.
1. Cole, Rufus: Treatment of Pneumonia by Means of Specific Serums, *J. A. M. A.* 61: 663 (Aug. 30) 1913.

2. (a) Cole, Rufus: Serum Treatment in Type I Lobar Pneumonia, *J. A. M. A.* 93: 741 (Sept. 7) 1929; (b) *Ann. Int. Med.* 10: 1 (July) 1936. (c) Abernethy, T. J.: *New York State J. Med.* 36: 627 (April 15) 1936.

3. Cecil, R. L., and Sutliff, W. D.: The Treatment of Lobar Pneumonia with Concentrated Antipneumococcus Serum, *J. A. M. A.* 91: 2035 (Dec. 29) 1928. Bullowa, J. G. M.: *Bull. New York Acad. Med.* 5: 328 (April) 1929. Cecil, R. L., and Plummer, Norman: Pneumococcus Type I Pneumonia, *J. A. M. A.* 95: 1547 (Nov. 22) 1930. Sutliff, W. D., and Finland, Maxwell: Type I Lobar Pneumonia Treated with Concentrated Pneumococcal Antibody (Felton), *ibid.* 96: 1465 (May 2) 1931; *New England J. Med.* 210: 237 (Feb. 1) 1934. The Serum Treatment of Lobar Pneumonia, Committee of the Medical Research Council, *Brit. M. J.* 1: 241 (Feb. 10) 1934. Finland, Maxwell: *Am. J. M. Sc.* 192: 849 (Dec.) 1936. Bullowa, J. G. M., Finland, Maxwell: *Am. J. M. Sc.* 192: 849 (Dec.) 1936. Bullowa, J. G. M.: Use of Pneumococcal Refined Serum in Lobar Pneumonia, *J. A. M. A.* 90: 1354 (April 28) 1928.

4. Bullowa, J. G. M., and Plummer, Norman: Pneumococcus Type II Pneumonia, *J. A. M. A.* 95: 779 (March 5) 1932.

5. Cecil, R. L., and Sutliff, W. D.: The Specific Serum Treatment of Pneumococcus Type II Pneumonia, *J. A. M. A.* 100: 560 (Feb. 25) 1933.

6. Finland, Maxwell, and Dowling, H. F.: *Am. J. M. Sc.* 191: 658 (May) 1936.

7. Finland, Maxwell; Tilghman, R. C.; Ruegger, J. M., and Dowling, H. F.: *Am. J. M. Sc.* 193: 59 (Jan.) 1937. Bullowa, J. G. M., *ibid.* 190: 65 (July) 1935; Therapeutic Pneumococcus Type VIII (Cooper) Serum, *J. A. M. A.* 102: 1560 (May 12) 1934.

although these can usually be counteracted by the judicious use of epinephrine, they are objectionable.

3. Chill reactions, as distinguished from anaphylactoid reactions, commonly follow the injection of antipneumococcus horse serum. These are generally not dangerous but they are distressing to the patient. The use of concentrated horse antiserum has considerably decreased the incidence of these chill reactions but, even with concentrated serum, chills are encountered in about 15 per cent of the cases.⁹

4. Serum sickness develops during convalescence in a very high percentage of patients treated with antipneumococcus horse serum. The use of concentrated horse serum has decreased the incidence of serum sickness somewhat, but in a recent paper Abernethy² reported its occurrence in 68 per cent of his cases.

5. It is generally believed that horse antiserum does not reduce the incidence of empyema in pneumonia. Once pleural fluid becomes infected, no amount of horse antiserum will affect the subsequent course of the exudate. In a search of the literature we have been unable to find any evidence indicating that horse serum antibody has been demonstrated in pleural fluid after intravenous injection. Sabin¹⁰ attacked this problem directly and was unable to demonstrate antibody in the pleural fluid from five patients shown to have circulating type-specific antibody.

During a series of studies directed toward the numerous differences between type I antipneumococcus serums of many mammalian species, it became apparent that the use of antipneumococcus rabbit serum might afford a means of circumventing some of the less desirable characteristics of antipneumococcus horse serum. Type I antipneumococcus rabbit serum has been shown to differ in more than thirty distinct immunologic characteristics from type I antipneumococcus horse serum.¹¹

The more significant characteristics of antipneumococcus rabbit serum which have served as a rationale for its trial in the therapy of lobar pneumonia are as follows:

1. Unconcentrated rabbit antiserum has a relatively high mouse protective potency as compared with horse antiserum. Immune rabbit serum contains approximately 200 protective units per milligram of protein specifically precipitable by the homologous pneumococcus capsular polysaccharide, whereas most horse antisera contain only about 90 units.

2. The rabbit antibody is of relatively small size as compared with the horse antibody. From the results of a number of recent investigations, it now appears quite definite that the antibody from horse serum is at least from three to four times larger than the antibody from rabbit serum. This has been demonstrated both by ultrafiltration¹² and by ultracentrifugation.¹³ Other factors being constant, the smaller the antibody the more effective should be the penetration into infected tissues.

3. Protection fails entirely when greater than optimum amounts of horse antiserum are used in the mouse protection test. This prozone phenomenon does not occur with immune rabbit serum.¹⁴

4. The mouse protective action of horse antipneumococcus serum is inhibited by physiologic amounts of cholesterol and cephalin. The addition of these lipids to rabbit antipneumococcus serum does not affect its protective action.¹⁵

5. The immunization of horses is uncertain and slow as compared with the ease and rapidity with which rabbits can be immunized. Not every horse produces serum of useful potency and, in general, immunization requires a period of six months or more. Almost 100 per cent of rabbits produce antiserum of high potency after immunization with type I pneumococci. By intensive immunization it is possible to obtain in as short a

time as four weeks serum containing about 2,000 mouse protective units per cubic centimeter. On the other hand, unconcentrated horse serum averages about 500 units per cubic centimeter. There is reason to believe that, with other types of pneumococci, rabbits are much more readily immunized than are horses.

6. It would seem from the best estimates available that, on the basis of equivalent amounts of protective antibody, unconcentrated rabbit serum costs approximately one fifth as much as concentrated horse serum.

Because of these considerations, unconcentrated type specific rabbit serum has been used in the treatment of lobar pneumonia in the Hospital of the Rockefeller Institute during the past twelve months. A preliminary note as to the reasons for its trial has already appeared.¹⁶ The results obtained in the treatment of twenty-two cases form the subject of this paper.

PREPARATION OF TYPE SPECIFIC RABBIT ANTIPNEUMOCOCCUS SERUMS

Rabbits weighing from 3 to 5 Kg. were immunized by the intravenous injection of suspensions of pneumococci treated with formaldehyde. The precise method of immunization need not be detailed but in general the plan involved intensive courses, frequently repeated, so that high antibody titers would be achieved in a short period of time. Blood was collected with aseptic technique by cardiac puncture, 50 cc. being withdrawn from each rabbit every two weeks. Antibody titers were maintained by additional intravenous injections of pneumococcus suspensions after each bleeding. The serum from rabbits immunized with a single type was pooled and filtered through a Berkefeld V candle. Methylolite to a final concentration of 1:10,000 was added and the serum stored in the icebox until a considerable quantity had been collected. It was then heated to 56 C. for thirty minutes and after cooling was absorbed with washed sterile kaolin. Absorption was carried out for fifteen hours at 4 C., 5 Gm. of kaolin per hundred cubic centimeters of serum being used. After separation of the kaolin by centrifugation the serum was again filtered through a Berkefeld V candle and filled into vials of suitable size. The usual sterility and toxicity tests were carried out.

ADMINISTRATION OF SERUM

Immediately after the patient's admission the diagnosis was confirmed by x-ray examination and the type of pneumococcus in the sputum was determined by the Neufeld reaction. Subsequently the typing was confirmed by mouse inoculation.

Before therapeutic intravenous administration of serum, all patients were tested for sensitivity to rabbit serum in a routine way by three methods:

1. *Intradermal Test.*—One-tenth cubic centimeter of a 1:10 dilution of normal rabbit serum in physiologic solution of sodium chloride was injected intradermally. This was controlled by a corresponding injection of saline solution. All patients have reacted positively. In many this reaction appeared as a small and transient erythematous patch, while in a few cases there developed a blanched wheal with circumferential erythema. It was found that none of these positive reactions were significant as an indication of sensitivity to rabbit serum injected intravenously.

2. *Conjunctival Test.*—One-tenth cubic centimeter of a 1:10 dilution of normal rabbit serum in physiologic solution of sodium chloride was instilled into one conjunctival sac. None of the patients tested showed a positive reaction, as evidenced by injection of the conjunctival vessels, itching or lacrimation.

3. *Intravenous Test.*—One-tenth cubic centimeter of the type-specific antipneumococcus rabbit serum to be used was diluted with 5 cc. of saline solution and injected intravenously. A

9. Lord, F. T., and Heffron, R.: Lobar Pneumonia and Serum Therapy. New York, Commonwealth Fund, 1936.

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positive reaction with this test consists of a fall in arterial blood pressure and an increase in pulse rate within five minutes. No positive reaction has been observed in any case in this series.

Following a negative reaction to the intravenous test the administration of serum was begun. In the first few cases 2 cc. of serum diluted to 20 cc. with saline solution was given initially, and the volume of serum

TABLE 1.—Type I Antipneumococcus Rabbit Serum Therapy in Type I Pneumococcus Pneumonia

Case No.	Yrs.	X-ray	WBC thousands	Bacteremia colonies per cc.	Pleural exudate	First serum after onset, hours	Crisis after first serum, hours	Serum cc.	Result
1	♂ 57		12.3	62	+	63	95	112	R
2	♀ 36		6.6	4	•	101	24	115	R
3	♂ 30		3.9	1	0	15	39	220	R
4	♂ 6		22.0	0	0	39	12	32	R
5	♂ 54		12.3	1	0	44	10	160	R
6	♂ 29		10.3	<1	0	47	15	117	R
7	♂ 45		19.4	0	•	50	14	140	R
8	♀ 39		16.4	3	0	54	14	140	R
9	♂ 43		25.0	<1	0	55	6	90	R
10	♀ 50		16.4	<1	•	14	5	120	R
Average						42	23	124	

+ Infected + R Recovered
• Sterile D Died

was then doubled every two hours until from 30 to 40 cc. of undiluted serum was given at each injection. Later it was found that a greater increment could be used and that the administering of serum at intervals of forty minutes produced a more rapid drop in temperature. In the last few cases an attempt has been made to give an adequate therapeutic amount of serum at one injection. No symptoms whatever have followed the intravenous administration of 125 cc. of undiluted serum over a period of ten minutes.

The first therapeutic injections of rabbit serum were not infrequently followed by chill reactions of the delayed type. These reactions occurred from forty-five to sixty-five minutes after administration of the serum. A chill occasionally followed the second and rarely the third injection. After these initial chills a refractory period occurred and chills did not result from additional serum unless it became necessary to change to a different lot. It has been found that heating the serum to 56 C. for thirty minutes and adsorbing with sterile kaolin reduces considerably the amount of the chill producing substances. The simultaneous oral administration of 0.9 Gm. of acetylsalicylic acid with the first injection of serum has prevented practically all chill reactions in the last few cases.

TYPE I PNEUMOCOCCUS PNEUMONIA

Ten patients with type I pneumococcus pneumonia have been treated with unconcentrated type I antipneumococcus rabbit serum. The more important data are summarized in table 1. Eight of the ten patients had bacteremia on admission and one had a pleural exudate grossly infected with type I pneumococcus. Four of the ten patients entered the hospital with consolidation of two or more lobes and two of the four had bilateral consolidation. Two patients were sufficiently ill to necessitate treatment in the oxygen chamber. Pneumonia had been present for an average of forty-two

hours before type I rabbit serum therapy was begun. The administration of serum was carried out over an average period of nineteen hours in the ten cases. The total unconcentrated serum dosage averaged 124 cc. per case, or 248,000 units. The temperature, pulse and respiratory rates came to normal by crisis in an average of twenty-three hours after the institution of serum therapy or sixty-five hours from the beginning of the disease. Skin tests with type I capsular polysaccharide were positive at the time of the critical fall in temperature in seven of the ten patients. In two patients the skin test was equivocal and in one it remained persistently negative. Chill reactions occurred in six of those treated with type I rabbit serum. Recovery occurred in all ten patients and was entirely uneventful in eight. Midopliteal thrombophlebitis developed in one case. In two patients mild serum sickness of the urticarial type occurred ten days after the beginning of serum therapy, and of these one also had slight arthralgia.

One patient (case 1) requires special mention. On admission there was present a turbid pleural exudate which was grossly infected with type I pneumococcus. Following the intravenous administration of type I rabbit serum, type I antibody appeared in the exudate. Subsequently the exudate became sterile and was absorbed. The presence of antibody was demonstrated by agglutinin and precipitin reactions as well as by the mouse protection test. Surgical drainage was not required.

TYPE II PNEUMOCOCCUS PNEUMONIA

Four patients with type II pneumococcus pneumonia have been treated with unconcentrated type II antipneumococcus rabbit serum. The more important data are presented in table 2. Two patients had consolidation of two lobes on admission, in two there were pleural exudates grossly infected with type II pneumococcus, one had type II bacteremia, one auricular fibrillation, and in one delirium tremens developed. Two required treatment in the oxygen chamber. The disease had been present for an average period of seventy-four hours

TABLE 2.—Type II Antipneumococcus Rabbit Serum Therapy in Type II Pneumococcus Pneumonia

Case No.	Yrs.	X-ray	WBC thousands	Bacteremia colonies per cc.	Pleural exudate	First serum after onset, hours	Crisis after first serum, hours	Serum cc.	Result
1	♀ 60		10.1	8	+	50	45	229	D
2	♀ 36		22.0	0	0	52	46	155	R
3	♂ 19		20.0	0	+	47	66	268	R
4	♂ 50		10.9	0	0	143	7	210	R
Average						74	42	231	

before serum therapy was begun. The administration of serum was carried out over a period which averaged fifty hours for the four cases. The total unconcentrated serum dosage averaged 231 cc. per case. A drop in temperature, pulse and respiratory rates to normal occurred at an average of forty-two hours after the beginning of serum therapy, or an average of 116 hours after the onset of the disease. Skin tests with type II capsular polysaccharide were positive either at the time or shortly after the defervescence in all four cases. Chill reactions following serum occurred in three of the four patients. Serum sickness of the urticarial type occurred in each of the four patients, but in no instance

was it severe and arthralgia occurred in only one. Three patients recovered.

The two patients who had pleural exudate grossly infected with type II pneumococcus deserve separate mention. In case 2 there was a considerable collection of pleural exudate, which contained large numbers of type II pneumococci. It was not possible to demonstrate the presence of type II antibody in this fluid after

TABLE 3.—*Type VII Antipneumococcus Rabbit Serum Therapy in Type VII Pneumococcus Pneumonia*

Case No.	Yrs.	X-ray	WBC thousands	WBC per cc.	hours	hours	cc.	
1	♂ 35		100	<1	0	37	39	164 R
2	♂ 32		142	0	0	34	11	122 R
3	♂ 60		97	0	0	26	9	150 R
Average					33	19	145	

the intravenous administration of type II rabbit serum. Loculated empyema developed and surgical drainage was instituted. This patient died suddenly five weeks after admission following rupture of a dissecting aneurysm of the thoracic aorta. This occurred into the empyema cavity. In case 13, 300 cc. of pleural exudate was withdrawn shortly after admission. This fluid contained large numbers of type II pneumococci. Following serum therapy it was possible to demonstrate the presence of type II antibody in this fluid and to prove immunologically that the antibody was of rabbit origin. Thereafter the exudate became sterile and operation was unnecessary. In the remaining two patients, convalescence was otherwise uneventful and uncomplicated.

TYPE VII PNEUMOCOCCUS PNEUMONIA

Three patients with type VII pneumococcus pneumonia have been treated with unconcentrated type VII antipneumococcus rabbit serum. The pertinent data are shown in table 3. One patient had type VII pneumococcus bacteremia on admission and one marked jaundice. Serum therapy was instituted after an average of thirty-three hours following the onset of the

TABLE 4.—*Type VIII Antipneumococcus Rabbit Serum Therapy in Type VIII Pneumococcus Pneumonia*

Case No.	Yrs.	X-ray	WBC thousands	Bacteremia colonies per cc.	Pleural exudate	First serum after onset, hours	Crisis after first serum, hours	Serum cc.	Result
1	♀ 52		274	2	0	23	33	185	R
2	♂ 24		92	0	0	26	43	267	R
3	♂ 15		79	0	0	74	19	135	R
4	♀ 56		268	<1	0	29	8	150	R
5	♀ 60		200	0	0	40	12	127	R
Average						36	23	173	

disease and was continued for an average of fourteen hours. The total unconcentrated serum dosage averaged 145 cc. per case. The temperature, pulse and respiratory rates dropped to normal by crisis in an average of nineteen hours after the beginning of serum therapy, or fifty-three hours after the onset of the disease. All recovered uneventfully. Moderate chill reactions occurred in two patients. In all three mild urticarial serum sickness developed and in one a sterile pleural effusion.

TYPE VIII PNEUMOCOCCUS PNEUMONIA

Five patients with type VIII pneumococcus pneumonia have been treated with unconcentrated type VIII antipneumococcus rabbit serum. The data are presented in table 4. Two patients had type VIII pneumococcus bacteremia on admission, one had bilateral consolidation, one was addicted to the use of dilaudid hydrochloride, and one was so ill as to require oxygen therapy. An average of thirty-eight hours elapsed from the onset of the disease until serum therapy was commenced. This was continued for an average period of eighteen hours. A total of 173 cc. of unconcentrated serum was given per case. The temperature, pulse and respiratory rates reached normal by crisis in an average of twenty-three hours from the institution of serum therapy or an average of sixty-two hours after the onset of the disease. Mild chill reactions occurred in four of the five patients. All five patients recovered. Convalescence was uncomplicated in all cases except for moderate urticarial serum sickness in three.

COMMENT

Twenty-two unselected cases of lobar pneumonia have been treated with unconcentrated type specific antipneumococcus rabbit serum. Ten patients had type I pneumonia, four had type II, three had type VII and

TABLE 5.—*Type Specific Antipneumococcus Rabbit Serum Therapy in Pneumococcus Pneumonia*

Type	Cases	Bacteremia, Number of Cases	Pleural Exudate, Number of Cases	First Serum After Onset, Average Hours	Crisis After First Serum, Average Hours	Serum, Average Cc.	Mortality, per Cent
I	10	8	1	42	23	124	0
II	4	1	2	74	42	231	25
VII	3	1	0	33	19	145	0
VIII	5	2	0	38	23	173	0
Total	22	12	3	46	26	159	4.5

five had type VIII. Of the twenty-two patients, twelve had pneumococcus bacteremia, seven had consolidation of two or more lobes, five were sufficiently ill to require treatment in the oxygen chamber, three had bilateral consolidation and three had pleural exudates containing large numbers of pneumococci. This series is summarized in table 5.

The average total dosage of antipneumococcus rabbit serum, irrespective of the type, was 159 cc. per case: 124 cc. for type I, 231 cc. for type II, 145 cc. for type VII and 173 cc. for type VIII. It is of interest that in 371 patients with type I pneumonia treated at the Hospital of the Rockefeller Institute the average total dosage of unconcentrated horse serum was 420 cc. per case.^{2a} In almost every instance the temperature, pulse and respiratory rates fell to normal a few hours after the administration of rabbit serum and the clinical signs of toxicity were entirely relieved. The average interval from the institution of serum therapy to the termination of the crisis was twenty-six hours, and consequently the acute signs of the disease had disappeared after an average of seventy-two hours from the initial onset of the pneumonia.

It is worth while pointing out that the fall in temperature in the four cases of type II pneumococcus pneumonia was delayed for an average of forty-two hours after the beginning of serum therapy and that more serum was required for this type than for any other treated.

No evidence of sensitivity to rabbit serum on intravenous injection was found in any of the patients treated. Almost invariably the skin tests with normal rabbit serum were positive, but intravenous tests did not produce significant fall in blood pressure or any other sign suggesting hypersensitiveness. No immediate symptoms have followed the intravenous injection of 125 cc. of undiluted rabbit serum in a period as short as ten minutes. The chill reactions, which in the early cases frequently occurred an hour after the first and second and occasionally the third dose of serum, have latterly been eliminated by the oral administration of acetylsalicylic acid (0.9 Gm.) simultaneously with the first injection of serum. It must be reemphasized that the serum was heated to 56 C. for thirty minutes and after cooling was absorbed with sterile kaolin for fifteen hours at 4 C. Since the institution of these procedures chills have been abolished, and the administration of serum has thereby been made far more rapid and the single doses have been larger than was considered advisable in the beginning.

Sabin and Wallace¹⁷ studied the effects of a large number of drugs, including the various antipyretics, on the chill reactions which follow the intravenous administration of horse antipneumococcus serum and concluded that, while nitrites, opium and antipyretics may mitigate the chill reaction, it is doubtful whether they have any practical therapeutic application.

It is highly desirable that the giving of antipneumococcus serum should be made as simple and as rapid as possible. With this in view the rate of administration of serum has been gradually increased in this series of cases with the hope of accomplishing adequate serum therapy with one injection. Actually the last three patients (cases 10, 17 and 22) were treated in this way and, excluding the initial intravenous test doses of 0.1 cc. and 2.0 cc., all received what was thought to be an adequate amount of serum in a single injection. In cases 10 and 17 an additional injection of 40 cc. and 25 cc. respectively was given a few hours after the first injection. It is considered possible that, after additional experience with the various types of immune rabbit serums has been acquired, most cases of lobar pneumonia can be adequately treated with one intravenous injection.

Of the three patients whose pleural exudates were grossly infected with pneumococci, sterilization occurred in two after the intravenous administration of serum, and the fluid was absorbed without the necessity of surgical drainage. In these two exudates the presence of type specific antibodies was readily demonstrable after serum therapy and it was possible by appropriate precipitin and absorption tests to determine that the antibody was of rabbit origin. In the remaining case no antibody was demonstrated in the exudate, and loculated empyema supervened and necessitated surgical intervention. Five weeks after the onset of the disease this patient died following rupture of an aneurysm of the thoracic aorta—the only death in the series. The two cases, one type I and one type II, in which recovery without empyema occurred in spite of initially infected pleural exudates seem worthy of additional consideration. One of the primary indications leading to the clinical trial of antipneumococcus rabbit serum was the apparent small size of the rabbit antibody as compared with that from the horse. The diameter of the former is certainly no greater than one third to one

fourth the diameter of the latter.¹⁸ Since pneumonic consolidation is primarily an extravascular lesion, as too are most of the infective complications resulting from or associated with it, any specific therapeutic agent that is to act locally in the lesion or against its causative agent must do so after penetrating the capillary endothelium. Since the ease with which substances penetrate or diffuse through semipermeable membranes, such as the capillary endothelium, is related in part to their physical size, it seemed reasonable to assume that the rabbit antibody should, by virtue of its smaller size, penetrate into both the pulmonary lesion and the pleural cavity with considerably greater ease and speed than could the horse antibody. In two instances at least this assumption has been found correct, since after the intravenous injection of rabbit serum antibody became readily demonstrable in the pleural fluid. In these two cases the infecting pneumococci disappeared from the pleural exudate and empyema did not occur. After the intravenous injection of horse antiserum it is known that antibody does not diffuse into the pleural space.¹⁹

Twenty-one of the twenty-two patients treated made a complete recovery. Convalescence was on the whole rather uneventful. Mild urticarial serum sickness occurred in twelve of the twenty-two, and in one popliteal thrombophlebitis developed. This was not followed by other sequelae.

SUMMARY

1. Twenty-two patients with lobar pneumonia have been treated with unconcentrated type specific rabbit antipneumococcus serums: ten with type I, four with type II, three with type VII and five with type VIII pneumococcus pneumonia.

2. Pneumococcic bacteremia was present in twelve of the twenty-two, consolidation of two or more lobes in seven, bilateral consolidation in three and pleural exudate containing large numbers of pneumococci in three.

3. Twenty-one patients recovered and one patient died of rupture of the aorta five weeks after the onset of the disease. Recovery was rapid and by crisis in almost all, and the signs of intoxication disappeared shortly after serum therapy. Crisis occurred after an average of twenty-six hours following the institution of serum therapy, and latterly in five cases with the more rapid administration of serum this period has been decreased to an average of nine hours.

4. Empyema did not develop in two patients with grossly infected pleural exudates. Type specific antibody of rabbit origin was demonstrable in these exudates after the intravenous administration of serum, and following this the pneumococci disappeared. Empyema occurred in one patient. In this case, type specific antibody was not demonstrable in the exudate and the pleural infection progressed, necessitating surgical drainage.

5. From these results it appears that unconcentrated type specific antipneumococcus rabbit serum is at least as effective as concentrated horse serum in the treatment of lobar pneumonia. This fact when added to the relative rapidity and ease with which it can be produced, the relatively low cost of the finished product, the facility with which it can be administered, as well as the evidence indicating that rabbit antibody can penetrate the pleura and assist in the sterilization of an infected exudate would suggest that type specific antipneumococcus rabbit serum is a therapeutic agent of considerable promise.

17. Sabin, A. B., and Wallace, G. B.: *J. Exper. Med.* 53: 339 (March) 1931.

18. Elford, Grabar and Fischer.²² Heidelberger and Pedersen.²³

SUMMARY OF CASES

CASE 1.—A white man, aged 57, was admitted sixty hours after typical onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the right upper, right middle and right lower lobes. The white blood cells numbered 12,300. Blood culture yielded type I pneumococcus, 62 colonies per cubic centimeter. Pleural exudate contained large numbers of type I pneumococcus. Treatment in the oxygen chamber was necessary. Unconcentrated rabbit type I antipneumococcus serum therapy was begun three hours after admission. A total of 112 cc. of serum was given intravenously in the next ninety-four hours. The skin test became positive with type I polysaccharide. The temperature, pulse and respiratory rate dropped to normal by crisis ninety-five hours after the beginning of serum therapy (158 hours after the onset of pneumonia). Following this the temperature did not exceed 101.4 F. Convalescence was slow but progressive improvement occurred. Type I antibodies were demonstrated in the pleural exudate after the termination of serum therapy, and empyema did not develop. The pleural exudate became sterile and was slowly absorbed. Serum disease did not occur.

CASE 2.—A white woman, aged 36, was admitted ninety-eight hours after typical onset of type I pneumococcus pneumonia. X-ray examination showed dense consolidation of the right middle, right lower and left lower lobes. White blood cells numbered 6,800. Blood culture yielded type I pneumococcus, 4 colonies per cubic centimeter. The pleural exudate was sterile. The patient required treatment in the oxygen chamber. Unconcentrated rabbit type I antipneumococcus serum therapy was begun three hours after admission. A total of 115 cc. of serum was given intravenously in the next eighteen hours. The skin test with type I polysaccharide became positive. The temperature, pulse and respiratory rate dropped to normal by crisis twenty-four hours after the beginning of serum therapy (125 hours after the onset of pneumonia). On the following day there was a slight secondary rise in temperature to 101.8 F. and on the next day another rise in temperature to 100.9 F. Convalescence was uneventful. Serum sickness did not develop. The pleural exudate was rapidly absorbed.

CASE 3.—A white man, aged 30, entered the hospital twelve hours after the onset of type I pneumococcus pneumonia. X-ray examination revealed consolidation of the left lower and left upper lobes. The white blood cells numbered 3,900. Blood culture yielded type I pneumococcus, 1 colony per cubic centimeter. The patient was an alcoholic and rapidly became irrational and cyanotic. Unconcentrated type I antipneumococcus rabbit serum therapy was instituted three hours after admission. A total of 220 cc. of serum was given intravenously over a twenty-hour period. The skin test with type I polysaccharide became positive. There was a critical fall in temperature thirty-nine hours after the commencement of serum therapy (fifty-four hours after the onset of pneumonia). There was a slight evening rise in temperature on the three succeeding days. Convalescence was uneventful.

CASE 4.—A white boy, aged 8 years, was admitted thirty-eight hours after sudden onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the left lower lobe. The white blood cells numbered 22,000. Blood culture was sterile. Unconcentrated type I antipneumococcus rabbit serum therapy was instituted one hour after admission. A total of 32 cc. of serum was administered intravenously in four hours. The skin test with type I polysaccharide became positive. The temperature, pulse and respiratory rate fell by crisis to normal twelve hours after the beginning of serum therapy (fifty-one hours after the onset of pneumonia) and there was no secondary rise.

CASE 5.—A white man, aged 54, was admitted forty-two hours after typical onset of type I pneumococcus pneumonia. The patient had hyperchromic macrocytic anemia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 12,300. Blood culture yielded type I pneumococcus, 1 colony per cubic centimeter. Unconcentrated type I antipneumococcus rabbit serum therapy was begun two hours after admission. A total of 160 cc. of serum was given intravenously in sixteen hours. The skin test with type I polysaccharide remained negative. The temperature, pulse and respiration fell to normal ten hours after serum therapy was begun (fifty-four hours after onset of pneumonia). A mild urticarial serum sickness occurred eight days after admission.

CASE 6.—A white man, aged 29, was admitted thirty-six hours after typical onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the right middle and left lower lobes. The white blood cells numbered 18,300. Blood culture yielded type I pneumococcus, less than 1 colony in each 2 cc. of blood. Serum therapy was delayed until twelve hours after admission because of a positive skin test to type I polysaccharide. A total of 117 cc. of unconcentrated type I antipneumococcus rabbit serum was given intravenously over a seven hour period. The temperature, pulse and respiratory rate fell to normal by crisis fifteen hours after the beginning of serum therapy (sixty-two hours after the onset of pneumonia). A secondary rise in temperature to 101.2 F. occurred on the evening of the day of crisis. Convalescence was uneventful except for a mild postfebrile psychosis of three days' duration. Serum sickness did not occur.

CASE 7.—A white man, aged 50, was admitted twenty-eight hours after typical onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 19,400. Blood culture was sterile. Unconcentrated type I antipneumococcus rabbit serum therapy was begun one hour after admission. A total of 140 cc. of serum was given intravenously in fifteen hours. The skin test with type I polysaccharide became positive. The temperature, pulse and respiratory rate fell to normal by crisis fourteen hours after the beginning of serum therapy (forty-four hours after the onset of pneumonia). A secondary rise of temperature to 102.8 F. occurred on the evening of the day of crisis. Moderately severe serum sickness with both skin and joint manifestations began on the eighth day following serum. Convalescence was complicated by thrombophlebitis involving the left popliteal vein. Resolution of this process occurred without incident.

CASE 8.—A white woman, aged 39, was admitted thirty-two hours after the onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the left upper lobe. The white blood cells numbered 16,400. Blood culture yielded type I pneumococcus, 3 colonies per cubic centimeter. An electrocardiogram revealed complete heart block. Unconcentrated type I antipneumococcus rabbit serum therapy was started two hours after admission. A total of 140 cc. of serum was given intravenously in twelve hours. The skin test became positive to type I polysaccharide. The temperature, pulse and respiratory rate came to normal by crisis fourteen hours after the beginning of serum therapy (forty-eight hours after the onset of pneumonia). No secondary rise in temperature occurred. Convalescence was uncomplicated.

CASE 9.—A white man, aged 42, was admitted thirty-two hours after typical onset of type I pneumococcus pneumonia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 25,800. Blood culture yielded type I pneumococcus, less than 1 colony in each 2 cc. of blood. Unconcentrated type I antipneumococcus rabbit serum therapy was begun two hours after admission. A total of 90 cc. of serum was given intravenously in a three hour period. The skin test with type I polysaccharide was equivocal. The temperature, pulse and respiratory rate fell to normal by crisis six hours after the beginning of serum therapy (forty-one hours after the onset of pneumonia). A secondary rise in temperature did not occur. Convalescence was uneventful. Serum sickness did not occur.

CASE 10.—A white woman, aged 50, was admitted eleven hours after the beginning of type I pneumococcus pneumonia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 14,800. Blood culture yielded type I pneumococcus, less than 1 colony per cubic centimeter. Unconcentrated type I antipneumococcus rabbit serum treatment was undertaken three hours after entry. A total of 120 cc. of serum was administered intravenously in three hours. The skin test became positive to type I polysaccharide. The temperature and pulse rate reached normal five hours after the beginning of serum treatment (nineteen hours after the onset of pneumonia). For the following fourteen days the patient had a low grade fever. Moderately severe urticarial serum sickness developed eight days after the beginning of serum therapy. Sterile pleural exudate was found to contain type I antibody. Resolution was slow.

CASE 11.—A white woman, aged 60, was admitted thirty-six hours after typical onset of type II pneumococcus pneumonia.

X-ray examination showed consolidation of the left lower lobe. The white blood cells numbered 16,100. Blood culture yielded type II pneumococcus, 8 colonies per cubic centimeter. Auricular fibrillation was present. Unconcentrated type II antipneumococcus rabbit serum therapy was begun fourteen hours after admission. A total of 179 cc. of serum was given intravenously in twenty-four hours. The skin test became positive to type II polysaccharide. The temperature declined by lysis over a period of twenty-four hours. In the succeeding three days an additional 80 cc. of serum was given because of secondary rises in temperature. Mild urticarial serum sickness occurred eight days after serum administration. Type II pneumococcus empyema developed on the eighth day of disease and was treated by rib resection and drainage. Type II antibody was not demonstrable in the pleural exudate. The patient died suddenly thirty-eight days after admission from rupture of a dissecting aneurysm of the thoracic aorta.

CASE 12.—A white woman, aged 36, was admitted thirty-six hours after typical onset of type II pneumococcus pneumonia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 22,800. Blood culture was sterile. Unconcentrated type II antipneumococcus rabbit serum therapy was instituted sixteen hours after admission. A total of 155 cc. of serum was given intravenously in the next eighty hours. The skin test became positive to type II polysaccharide. The temperature, pulse and respiratory rate fell to normal by crisis sixty-eight hours after the beginning of serum therapy (120 hours after the onset of pneumonia). No secondary rise in temperature occurred. Convalescence was rapid and uneventful except for very mild urticarial serum sickness, which developed ten days after the beginning of serum.

CASE 13.—A white youth, aged 19, was admitted forty-eight hours after the abrupt onset of type II pneumococcus pneumonia. The patient was an alcoholic addict. X-ray examination revealed consolidation of the right lower lobe, which spread rapidly to involve both the right middle and the right upper lobe. The white blood cells numbered 20,000. Blood culture was sterile. Unconcentrated type II antipneumococcus rabbit serum treatment was begun one hour after admission. A total of 268 cc. of serum was injected intravenously within a period of thirty hours. Falling blood pressure and cyanosis required the administration of oxygen in the chamber. The skin test became positive to type II polysaccharide. The temperature and pulse rate reached normal levels sixty-eight hours after the beginning of serum therapy (117 hours after the onset of pneumonia). Pleural exudate during the febrile stage contained large numbers of type II pneumococci. After the intravenous administration of serum, type II antibody of rabbit origin became demonstrable in this exudate and the pneumococci disappeared. The exudate was rapidly absorbed and convalescence was uneventful, except for mild urticarial serum sickness that developed after five days. The subsequent course was uneventful.

CASE 14.—A white man, aged 50, was admitted 144 hours after an acute onset of type II pneumococcus pneumonia. X-ray examination showed massive consolidation of the right upper lobe. The white blood cells numbered 18,900. Blood culture was sterile. Unconcentrated type II antipneumococcus rabbit serum therapy was instituted one hour after admission. A total of 210 cc. of serum was given intravenously in six hours. Marked cyanosis necessitated the administration of oxygen. There was also slight jaundice. The skin test became positive to type II polysaccharide. The temperature, pulse and respiratory rate fell to normal seven hours after the beginning of serum treatment (152 hours after the onset of pneumonia). Moderate secondary rises in temperature, unaccompanied by signs of intoxication, occurred on eight succeeding days. There was no pleural exudate but resolution was markedly delayed. Mild urticarial serum sickness with slight arthralgia occurred after fourteen days.

CASE 15.—A white man, aged 35, was admitted thirty-two hours after a typical onset of type VII pneumococcus pneumonia. X-ray examination revealed consolidation of the right upper lobe. The white blood cells numbered 18,000. Blood culture yielded type VII pneumococci, 1 colony in each 2 cc. Unconcentrated type VII antipneumococcus rabbit serum therapy was commenced five hours after admission, and 164 cc. of serum was given intravenously in thirty-five hours. The temperature, pulse and respiratory rate fell to normal by crisis thirty-nine hours after the beginning of serum therapy (seventy-

six hours after the onset of pneumonia). Convalescence was interrupted only by slight urticaria and transitory joint stiffness, which developed nine days after the beginning of serum therapy.

CASE 16.—A white man, aged 32, was admitted twenty-eight hours after atypical onset of type VII pneumococcus pneumonia. The patient was deeply jaundiced. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 14,200. Blood culture was sterile. Unconcentrated type VII antipneumococcus rabbit serum therapy was begun six hours after admission. A total of 122 cc. of serum was given intravenously in four hours. The temperature, pulse and respiratory rate fell to normal by crisis eleven hours after the beginning of serum therapy (forty-five hours after the onset of pneumonia). Jaundice disappeared quickly following deferescence, but mild serum sickness appeared seven days after administration of the serum. A sterile effusion occurred into the right pleural cavity during convalescence but was rapidly absorbed.

CASE 17.—A white man, aged 60, was admitted twenty-seven hours after the onset of type VII pneumococcus pneumonia. X-ray examination showed a consolidation of the right upper lobe. The white blood cells numbered 9,750. Blood culture was sterile. Unconcentrated type VII antipneumococcus rabbit serum therapy was begun one hour after admission. A total of 150 cc. of serum was injected intravenously in twelve hours. The temperature, pulse and respiratory rate reached normal nine hours after the commencement of serum therapy (thirty-seven hours after the onset of pneumonia). On the following five days there was a slight evening elevation of temperature. Convalescence was uninterrupted except for urticarial serum sickness, which developed four days after the beginning of serum treatment and recurred six days later.

CASE 18.—A white woman, aged 51, was admitted twenty hours after typical onset of type VIII pneumococcus pneumonia. X-ray examination showed consolidation of the right upper lobe. The white blood cells numbered 27,400. Blood culture yielded type VIII pneumococcus, 2 colonies per cubic centimeter. Oxygen therapy was necessary. Unconcentrated type VIII antipneumococcus rabbit serum therapy was begun three hours after admission. A total of 185 cc. of serum was given in the next twenty hours. The temperature, pulse and respiratory rate fell to normal by crisis thirty-three hours after the institution of serum therapy (fifty-six hours from the onset of pneumonia). No secondary rise in temperature occurred. Convalescence was uneventful except for extensive urticarial serum sickness, which developed six days after the beginning of serum.

CASE 19.—A white man, aged 24, was admitted twenty-four hours after onset of type VIII pneumococcus pneumonia. X-ray examination revealed consolidation in the right lower and left lower lobes. The white blood cells numbered 9,200. Blood culture was sterile. Unconcentrated Type VIII antipneumococcus rabbit serum treatment was undertaken two hours after entry. A total of 267 cc. of serum was given during a period of thirty-three hours. The temperature, pulse and respiratory rate fell precipitously to normal forty-three hours after the beginning of serum therapy (sixty-nine hours after the onset of pneumonia). No secondary rise in temperature occurred. Serum sickness did not occur. Convalescence was uneventful.

CASE 20.—A white youth, aged 15, was admitted seventy-two hours after typical onset of type VIII pneumococcus pneumonia. X-ray examination showed consolidation of the left upper lobe. The white blood cells numbered 7,900. Blood culture was sterile. Treatment with unconcentrated type VIII antipneumococcus rabbit serum was begun two hours after admission. A total of 135 cc. of serum was given intravenously in seventeen hours. The temperature, pulse and respiratory rate fell to normal by crisis nineteen hours after the beginning of serum therapy (ninety-three hours after the onset of pneumonia). No secondary rise in temperature occurred. Convalescence was uneventful except for very mild urticarial serum sickness which developed twelve days after administration of the serum.

CASE 21.—A white woman, aged 56, was admitted twenty-eight hours after typical onset of type VIII pneumococcus pneumonia. X-ray examination showed consolidation of the right upper lobe. The white blood cells numbered 26,800. Blood culture yielded type VIII pneumococcus, less than 1 colony in

each of 2 cc. of blood. Unconcentrated type VIII antipneumococcus rabbit serum therapy was begun two hours after admission. A total of 150 cc. of serum was given intravenously in four hours. The temperature, pulse and respiratory rate fell to normal by crisis twelve hours after the beginning of serum therapy (forty-two hours after the onset of pneumonia). Transient urticaria appeared ten days after the serum was given. Convalescence was uneventful.

CASE 22.—A white woman, aged 68, was admitted thirty-eight hours after typical onset of type VIII pneumococcus lobar pneumonia. X-ray examination showed consolidation of the right lower lobe. The white blood cells numbered 20,000. Blood culture was sterile. A total of 127 cc. of unconcentrated type VIII antipneumococcus rabbit serum was given intravenously in a single injection two hours after admission. The temperature, pulse and respiratory rate fell to normal by crisis twelve hours after injection of the serum (fifty-two hours after the onset of pneumonia). No secondary rise in temperature occurred. Convalescence was uneventful. Serum sickness did not develop.

Sixty-Sixth Street and York Avenue.

THE RATIONALE OF THE TANNIC ACID-SILVER NITRATE TREATMENT OF BURNS

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A new conception of burns has been brought about as a result of their treatment by the tannic acid-silver nitrate method.¹ This treatment appears to change the lesion into one comparable to a surgical wound. It is this induced change, by the application of tannic acid and silver nitrate, that makes it superior to any other procedure from many different points of view:

1. The saving of lives that would be lost through the slower method of tanning.
2. The immediate stopping of the loss of body fluids, thereby preventing the consequent concentration of the blood.
3. The immediate prevention or very definite minimizing of shock.
4. The immediate prevention of the absorption of toxic products.
5. The prevention of infection by the short period of application of moisture and the early drying of the tanned tissues.
6. The saving of the kidneys and other organs from the effects of fluid concentration and the absorption of toxins and infection.
7. The greater comfort of the patient.
8. The fact that the patient is carried safely past the first twenty-four hours, the most critical period following a serious burn.
9. The fact that the patient avoids the second critical period, that of infection and late absorption of toxic products.
10. The simplification of the nursing problem, especially in the first twenty-four hours.
11. The prevention of further breaking down of tissues, resulting from long application of wet dressings.
12. The prevention of chilling, resulting from the long application of cold, wet dressings.
13. The formation of a thin, flexible coagulum.
14. The speedy healing of the burned areas with a shortened period of hospitalization.
15. The prevention or minimizing of heavy contracting scars by early rapid healing in the absence of infection.
16. The lessening of the amount of skin grafting and secondary corrective surgery.

From the Department of Surgery, University of Oregon Medical School.

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1. Bettman, A. G.: The Tannic Acid-Silver Nitrate Treatment of Burns, *Northwest Med.* 34: 46-51 (Feb.) 1935; Tannic Acid and Silver Nitrate in Burns, *Surg., Gynec. & Obst.* 62: 458-463 (Feb., No. 2A) 1936.

In July 1934 I used the tannic acid and silver nitrate method for the first time on an extensive burn, the seventh burn on which it was used, although I had for many years used the same agents for the removal of tattooing. The result was the spectacular recovery of a doomed man. Previous presentations have dealt solely with the details of the application of the treatment. The present paper is a consideration of its rationale.

A burn lesion is not the burn alone but the burn plus all those consequences which develop because the treatment does not check them. The outcome of the treatment has in the past too often been considered as an unavoidable part of the original condition. Accordingly the treatment of serious burns has been approached with dread by physicians because of the limited benefits accruing from their management.

When tannic acid is applied to a burn and is followed by silver nitrate, a coagulum speedily forms which becomes impermeable to the further loss of body fluids and which immediately prevents additional fluid shifts. Through its speed alone in producing this change, it saves lives. This treatment by preventing dehydration minimizes shock and thereby carries the patient safely through the most critical period; that is, the first twenty-four hours following a serious burn. It therefore lessens one of the most fatal untoward effects of a burn.

A burn, however produced, results in injury to, or destruction of, the skin to a greater or less depth, frequently extending into the subjacent tissues. This injury to the outer protecting layer of the body quickly results in the formation of large or small vesicles, which may remain intact or which may become ruptured and ooze for a long time. Following a burn there begins at once the outpouring from the surface of the body of a great quantity of fluid. The loss of the outer layers of skin, those which act as a seal, allows this to take place unhindered. This serum loss rapidly reduces the amount of all body fluids. The removal of the protective layers of the skin alone by any means, including burns, results in a copious outflowing of serum. Such weeping outlets must be sealed at once to prevent dehydration.

In addition to the surface escape of fluid there is produced very early a reaction which calls for the pouring out of circulating body fluids into the tissues adjacent to the thermal injury. This local stagnation of fluids is also very large. Escape of fluid by means of the action of the sweat glands must also be added. These combined losses of circulating body fluids, namely, that which oozes from the body and that which stays in the tissues, is therefore not only voluminous but consequential, since Blalock,² Parsons and Phemister,³ Harkins,⁴ Underhill, Kapsinow and Fisk⁵ and

2. Blalock, Alfred: Experimental Shock: VII. The Importance of the Local Loss of Fluid in Production of the Low Blood Pressure After Burns, *Arch. Surg.* 22: 610-616 (April) 1931. Beard, J. W., and Blalock, Alfred: Experimental Shock: VIII. The Composition of the Fluid That Escapes from the Blood Stream after Mild Trauma to an Extremity, After Trauma to the Intestines, and After Burns, *ibid.* 22: 617-619 (April) 1931.

3. Parsons, E., and Phemister, D. B.: Hemorrhage and "Shock" in Traumatized Limbs, *Surg., Gynec. & Obst.* 51: 196 (Aug.) 1931. Phemister, D. B.: The Vascular Properties of Traumatized and Lacerated Bloods and of Bloods from Traumatized Limbs, *Ann. Surg.* 87: 896 (June) 1928.

4. Harkins, H. N.: Experimental Burns: I. The Rate of Fluid Shift and Its Relation to the Onset of Shock in Severe Burns, *Arch. Surg.* 31: 71-85 (July) 1935; Shift of Body Fluids in Severe Burns, *Proc. Soc. Exper. Biol. & Med.* 31: 994-995 (May) 1934; Bleeding Volume in Experimental Burns, *ibid.* 32: 3-4 (Oct.) 1934; Bleeding Volume in Severe Burns, *Ann. Surg.* 102: 444 (Sept.) 1935.

5. Underhill, F. P.; Kapsinow, Robert, and Fisk, M. E.: Studies in the Mechanism of Water Exsiccance in the Animal Organism: III. The Extent of Oedema Fluid Formation Induced by Superficial Burns, *Am. J. Physiol.* 93: 325 (Nov.) 1930. Underhill, F. P., and Kayser, J. Robert: The Alleged Toxins of Burned Skin, *J. Lab. & Clin. Med.* 16: 823 (May) 1931.

many other investigators have shown that traumatic shock is the result of the diminution and shift in circulating body fluids.

A brief review of some of the major points brought out by these experimenters is of interest. Animals were fixed on their backs in a trough suspended from above, in such a manner that the apparatus just balanced and was attached to a revolving, recording drum. Severe injury without bleeding was then produced to one side of the animal by burning or beating. Very shortly that side of the apparatus became heavier than the other. This shift of body fluids began promptly. Forty per cent of the maximum shift occurred within the first hour after the injury and continued in a gradually decelerating curve. In the course of these experiments the amount of circulating fluids lost was estimated in various ways: (1) by balancing the overweight of the burned side with weights on the opposite side and (2) by weighing separately the two sides of the animal after death. These authors further showed that the amount of blood obtained by bleeding an animal under an anesthetic is an index of the circulating blood volume. In control dogs the bleeding volume averaged over 55 per cent of the calculated circulating blood volume. In shock due to severe trauma of the extremities, whether caused by a burn or otherwise, it was reduced to as much as 16 per cent. The shift from the circulating blood stream to and about the injured tissues consisted therefore of a very large percentage of the circulating blood volume. The figures representing the circulating fluid loss were further substantiated by excising sections of muscle from the injured and the uninjured side, weighing them and then evaporating them to dryness, and also by expressing the fluids under pressure. The same figures were obtained. These determinations were still further checked by frequent hemoglobin estimations and hemocrit readings and were compared with control animals similarly anesthetized but otherwise uninjured.

The average loss of circulating body fluids following a severe burn was found to be 2.1 per cent of the total body weight. As dogs do not blister and weep, this loss was solely into and about the injured tissues. It was out of the circulation though not out of the body. The deprivation of a large volume of circulating body fluids is therefore shown to be the direct cause of shock, which will become manifest when the fluid reaches a certain low point. However, other factors may increase it. Other experimental evidence also shows that the blood pressure holds up fairly well until shortly before death. It falls only after the heart output is reduced, when shock supervenes. The blood pressure is therefore not a reliable criterion of the condition of the burned patient. Hemoglobin determinations, on the other hand, give much more reliable information and should be made frequently. The fluid that escaped into subcutaneous tissues after an experimental burn showed some chloride increase over the fluid portion of the blood. Sugar and nonprotein nitrogen were not changed, and the protein content was somewhat lower. It very closely resembled blood plasma.

It follows, then, that when a part is burned or otherwise injured there is produced in and about that area an altered physiology. A call goes forth that results in a rapid and great seeping of fluids into, and adjacent to, the injured area. A considerable fluid loss thereby is rapidly attained. However, when such a traumatized region is treated at once by the application of tannic acid followed by silver nitrate, all the destroyed and

injured tissues down to the very borderline of impaired cells are picked up and fixed in an innocuous, nonabsorbable coagulum.

The shift of the circulating body fluids into the tissues adjacent is halted at once. The necessity for prompt and complete stoppage of all fluid losses is imperative. A treatment that requires more than an hour in which to seal up the leaking surfaces and to control the fluid shift is therefore to a high degree inefficient. Tannic acid and silver nitrate applications which act instantly are therefore most efficient. The practical importance of speed in the initial treatment of burns is manifest when it is recalled that 60 per cent of the deaths from burns occur in the first twenty-four hours, nearly all from traumatic shock.

What are the practical applications of the foregoing facts to a man of say 155 pounds (70 Kg.)? The calculated blood volume, being one thirteenth of the body weight, is therefore 12 pounds (5.4 Kg.). The total amount of circulating body fluids is about 60 per cent of the calculated blood volume, or 7.2 pounds (3,266 Gm.). The loss of 2.1 per cent of the total body weight therefore would be $3\frac{1}{4}$ pounds (1,474 Gm.). Thus is lost between 40 and 50 per cent or even a greater amount of the entire fluid portion of the blood. It was also determined by comparison with experimental animals that a burn of one sixth of the body surface of a 150 pound (68 Kg.) man may cause a loss of 3,500 cc. or 70 per cent, a staggering amount, of the circulating body fluids in the first twenty-four hours.

The efforts of nature to overcome an injury by dilution of the obnoxious agent call for the outpouring of fluid into the surrounding and adjacent tissues. This produces edema of the intercellular spaces and widespread swelling. When tannic acid and silver nitrate are applied, the seal they provide exerts an influence that is beneficial beyond anticipation. The changes in the surface come with great promptitude. What was but a moment ago a red, wet, oozing, irritated surface is now covered with a black, smooth, dry, leatherized eschar, soft and flexible, yet firmly attached and acting as a protection from injury from without, as well as being an occlusant against the loss of fluids from within. The usual widespread and important systemic effects of the burn are not noted. Untoward reactions are absent and the picture is entirely different from that seen when other treatments are used.

With this treatment, the temperature usually does not rise above 101 F. even in extensive burns, and the pulse and respiratory rates are proportionately low. The red blood cell counts remain remarkably near normal, as do also the white cell counts. Only a few staff cells are present.

Gunn and Hillsman⁶ state that kidney damage occurs so regularly and so early that it may be taken as a part of the phenomena of burns and not be classed as a complication. Yet, when the tannic acid-silver nitrate treatment has been used, urinary suppression has never been seen, nor has albumin been present, or other abnormal elements, in the absence of grease or oil applications, except sugar, which may be present in the early specimens following any burn. The minimal systemic effects are a notably outstanding feature of this regimen.

When wet solutions are applied to tissues, normal or injured, over a long period, there is produced a reaction which is threefold: edema, maceration and infection. The presence of fluid, tannic acid solution, saline solu-

6. Gunn, J., and Hillsman, J. A.: Thermal Burns, *Ann. Surg.* 102: 429-443 (Sept.) 1935.

tion or what not, in contact with tissues over many hours is responded to by a dilatation of the neighboring blood vessels and an outpouring of fluid into the tissues. In addition, there is absorption of portions of the fluid into and about the injured area. A combination of these actions, therefore, results in the escape of increased amounts of fluids into the intercellular spaces. These spaces, becoming engorged, produce a very considerable enlargement of the extremity. This takes place when for example wet packs are applied as to a hand. However when tannic acid and silver nitrate are applied, the period of the application being but a few minutes at most, there is not time for the dilatation of vessels, for the outpouring of fluids from the circulation, for the absorption of fluids from the surface or for weeping.

Substances such as may be present as a result of the tissue destruction and which may produce local reactions causing intercellular edema are grasped and held at once permanently in an insoluble, nonabsorbable, irreversible matrix. There are therefore no irritating substances beneath the coagulum to call out a reactive response. There is no outpouring of fluid, no oozing, no overfilling of the intercellular spaces, no edema, no enlargement of the extremities and no increase of pressure within the coagulum. There are no toxins or other deleterious substances to be absorbed.

In practically all burns there remain unimpaired many epithelial islands of skin and of the deep glands. The long application of any solution breaks down many or all of these. Tannic acid and silver nitrate save these centers of epithelialization, and speedy healing with lessened scar tissue is therefore promoted.

By the use of tannic acid and silver nitrate, there being no fluid on the surface for long periods and the casing formed being dry, nonabsorbable and of a composition which is not a good culture medium, infection is prevented. The wound is dry and clean from the onset and is kept so throughout.

Contrariwise, when grease or oil in any form has been applied, whether as the burning agent or as the treatment, even though complete removal is attempted, there will remain areas which are not as dry as when grease has not been applied. Grease and oil applications should never be made to any burn.

When slow acting coagulating applications are made there is much edema, which progressively increases the tension of the tissues within the slowly forming casing. The application of tannic acid followed by silver nitrate produces an eschar under which there is little or no increased tension. An objection to the use of tannic acid alone is the loss of digits, which sometimes occurs. The marked difference in the tannic acid alone and the tannic acid-silver nitrate treatment in this regard is distinctly shown in the cases to be cited:

CASE 1.—Baby C., aged 5 months, received a burn of the entire right upper extremity, the chest and the face. The tannic acid-silver nitrate treatment had not yet been used on extensive burns and was used only on the chest. Tannic acid alone was used on the extremity and the face, according to established technic. The leatherization took place over a period of some hours, with another period for drying. During the time that the coagulum was forming an outpouring of serum from the surface as well as into the subcutaneous and deep tissues was taking place, as was also some absorption of fluid from the surface. These actions continued concurrently with the formation of the leatherized encasement, and the extremity became confined within a slowly forming but nevertheless firm case. The edema progressively increased and the pressure within the casing increased with it and finally became sufficiently great so that the venous return flow was impeded, as was also the arterial circulation. The hand sloughed off at the wrist just

below the point at which the circulation was superficial and therefore most easily compressed.

CASE 2.—R. B., a man, aged 45, received a 54 per cent (by actual measurement) gasoline burn extending from the top of his head to his right ankle. He was seen shortly after patient 1. So seriously burned was he that three physicians told him that his condition was hopeless. The burn of the hand and arm was more severe than that of the child, and his general condition was also very much worse. When I saw him four hours after the accident a considerable loss of circulating body fluids had already taken place. The hemoglobin was 165 per cent of normal and the red blood cell count showed concentration in proportion. Tannic acid was applied from head to foot, followed by silver nitrate. The oozing was stopped almost instantaneously and within a few minutes the surface was dry and there was no further increase of the dehydration. Albumin was never present in the urine. The outpouring of serum into the adjacent tissues was also stopped with promptitude. Encasement of more than half of the body surface, including the entire right arm and forearm, both wrists and hands and right leg and thigh, head, back and other parts, was quickly accomplished. A firm, dry, thin, leather-like covering was formed. The blood vessels of the wrists and elsewhere were not impinged on and the circulation of the burned extremities was not interfered with. There was little or no increase of pressure within the casings. The passage of but a few days showed that both hands with all fingers would be saved intact. He was all healed and well by the forty-second day and today has no impairment of function of the fingers and hands and no scarring anywhere except on the back of the right hand and forearm, where Thiersch grafts were applied on the twenty-sixth day.

The contrast of these two cases is very vivid. Not only was this life saved by the prompt action of the medicaments but his hands also by the absence of undue pressure within the rigid encasement which covered the extremities like a glove. It is not intended to convey the idea that digits may never be lost under this treatment, but they are not lost because of edema within the coagulum.

Three cultures taken from beneath unbroken tanned and dry coagulum on two seriously burned patients showed no growth of organisms, but cultures taken from uncovered areas showed *Staphylococcus albus*. The dry surface of treated areas is not a good culture medium for bacteria, and this condition is augmented by the antiseptic action of the silver present in the coagulum. From early periods silver, both in the metal and in the salts, has had wide usage for the prevention of infection in wounds, and surely it is here applied to a maximum effect.

That no absorption of silver takes place even when extremely large amounts of solution are used is proved by the fact that in none of the many cases treated has argyria or other evidences of silver absorption been seen, although carefully watched for. It has not been noted by other surgeons who have reported experience with this treatment.⁷

Patients treated with tannic acid followed by silver nitrate are remarkably comfortable at once. Many patients are ambulatory from the beginning or at a very early date, frequently even when portions of the lower extremities or the torso are the sites of injury. Even in very extensive burns, patients move about quite freely in bed. The extreme systemic effects of the burn are greatly attenuated. Irrational periods are present only in very large burns and are of short duration.

7. Trindade, Olavo: *Methodo de Bettman no tratamento de queimaduras pelo acido tannico-nitrato de prata*. A. Folha Medica (Brasil), October 1935. Cotter, A. P., and Kimball, N. K. B.: *The Tannic Acid-Silver Nitrate Treatment of Burns*, New Zealand M. J. 34: 344 (Dec.) 1935. Rambo, V. C., and James, J.: *Treatment of Tropical Ulcers in Leprosy*, J. Christian M. A. India, September 1935. Gentry, J. H.: *Modern Therapy in the Treatment of Burns*, New Orleans M. J. S. J. 88: 575 (March) 1936.

A serious burn affects all the vital organs unless stopped by efficient treatment. When dehydration occurs, it lowers the heart output and makes difficult the carrying on of the vital processes by the blood cells operating in deficient fluids with increased viscosity and resulting anoxemia. The lessened aeration of the blood is the effect of the difficulty in taking on oxygen and giving off carbon dioxide and other waste products. Toxic substances are excreted with difficulty and incompletely. The blood chemistry particularly is changed. The absorption of degenerated tissue and bacterial toxins modifies the action of all the organs and tissues within the body. It is proposed to discuss the blood chemistry phase of this treatment at another time. These untoward effects are not seen when the burn is early treated with tannic acid and silver nitrate as directed.

The treatment of burns with tannic acid alone has proved far superior to greases and oils and other applications. While the use of tannic acid alone, as brought out by Davidson,⁸ is a decided advance over applications of grease and oil, yet it is not comparable to the tannic acid-silver nitrate method. The tannic acid alone and the dye treatments act in hours. Tannic acid followed by silver nitrate controls the condition in minutes. As stated earlier, red blood cells and albumin do not occur in the urine of patients under the tannic acid-silver nitrate regimen in the absence of applications of grease or oil; but when these applications have been made there is always albumin in the urine, even though an attempt has been made to remove them.

In the latter case the deficiency in the stoppage of the fluid loss through weeping and edema is but slightly less than when grease has not been applied, not sufficient to make an appreciable difference in the concentration of the blood, yet this slight surface moisture is enough to permit the entrance into the blood stream of toxins or other elements that are present on the surface and to allow some infection to develop. The absorption of some substance or substances from the surface must account for the presence of the albumin in the urine.

Concentration of the blood by itself is not sufficient to explain the albuminuria, for it does not appear in other conditions in which dehydration is a marked factor, such as cholera, persistent diarrhea, severe hemorrhage and prolonged vomiting. Something other than fluid loss must be responsible for the injury to the kidneys, spleen, liver, adrenals, blood production mechanism and other internal organs. Also, when grease or oil has once been applied the temperature, pulse, respiration, blood counts and the like are increased over what they would have been had such application not been made. The breaking down of protein and the slight infection that develops must account for the presence of substances which are promptly absorbed and which give systemic reactions.

One pictures mentally the terrible painfulness of daily or more frequent dressings of a seriously burned child treated by carron oil or other oil and applications of grease. The infection is always so great beneath the dressings that frequent removals are imperative.

With tannic acid alone the maximum problem of nursing is the often to be repeated applications by swabbing, spraying or packs, with their almost continuous disturbing of the patient. As the coagulum slowly forms the loss of circulating body fluids con-

tinues, and this loss must be made up by repeated intravenous, subcutaneous or rectal administrations of fluid, for the stomach retention is usually at a low point at this time.

With tannic acid followed by silver nitrate, one thorough application of the medication and the patient is allowed to rest in his bed warmed by electric lights, being disturbed only once or twice or maybe three times for the giving of intravenous fluids. Surprisingly early is the mouth intake and the stomach retention sufficient to meet all requirements. Frequent hemoglobin estimations are the simple, easy and ever at hand guide that should determine the amount of the fluid intake. Following a serious burn a minimum of 1,000 cc. of fluids should be given every twenty-four hours for every 25 pounds (11 Kg.) of body weight, and this should be more or less equally divided throughout this period.

In the early part of the first twenty-four hours a very liberal proportion of the fluids should be given, but care is necessary, especially in children, to see that too large a quantity is not given at any one time. The sudden throwing of 500 cc. of fluid into the blood stream of a patient weighing say 50 pounds (23 Kg.), and who normally has but 4 pounds (1,814 Gm.) of blood, would dilute the circulating body fluids 25 per cent or more.

When the hemoglobin reading is nearing normal, care should be used in giving extra-alimentary fluids. A diplomatic nurse will have no difficulty in persuading her patient to take the required amount of water, fruit juices and the like by mouth after the earliest hours, provided it is properly distributed throughout the waking period. The necessity for including salt must not be overlooked, and dextrose also.

Instead of the nurse bending her efforts toward the production of a good coagulum, she has no concern with this feature, as it has already been accomplished by the twofold application, and she therefore spends her time in keeping the patient warm and the coagulum dry and in forcing fluids.

By this procedure the coagulum is formed by the combination of tannic acid with the body fluids and then by a union of the silver nitrate with this first combination. The application of tannic acid produces a grayish white precipitate, which instantly becomes black when in contact with the silver nitrate. Metallic silver is precipitated into the mass, where it is fixed. Any heavy metal would undoubtedly act in much the same way if used when silver nitrate is not available, but the good offices of the silver would be lacking.

Burns treated with oil and grease heal slowly, become infected, form abundant scar tissue and have a long and trying period of hospitalization. The treatment by tannic acid followed by silver nitrate, in the absence of oil and grease, promotes smooth healing. There is little or no infection beneath the coagulum, there is minimum scarring and a short period of hospitalization, frequently none at all, and there are no dressings to be changed. Many patients are entirely healed beneath the coagulum when it comes away.

Our records show that the hospital confinement period has been reduced to one-fourth the time by this treatment. In other words, it takes only weeks now for recovery whereas under former treatments months were required.

The tannic acid-silver nitrate treatment of a burn is carried out as follows: The patient is given a narcotic, which is repeated as often as may be necessary

8. Davidson, E. C.: Tannic Acid in the Treatment of Burns, Surg., Gynec. & Obst. 41: 202-221 (Aug.) 1925.

for comfort. Fluids must be forced throughout.⁹ Grease and oil in any form should not be used. If such an application, unfortunately, has been made, it must be removed with ether, benzene or ethyl acetate before treatment is applied. All blebs are to be opened and all loose skin and other burned tissues are to be removed. A thorough application of fresh 5 per cent tannic acid solution is made by means of cotton swabs. Following this, 10 per cent silver nitrate solution is applied in the same manner.

The local treatment now being completed, the patient is placed in a tent heated by electric light bulbs and the burned areas are dried and kept dry. In a few days the coagulum begins to loosen and is removed as early as possible. When it comes away, large areas and not infrequently all the burned surfaces will be found to be entirely healed. Occasionally moisture will be hidden beneath crusts where drying has not been satisfactorily accomplished, and such areas are unhealed. When the coagulum is adherent but loose, it is removed, a scalpel being used if necessary. Unhealed areas are treated by the application of oxyquinoline sulfate scarlet R gauze,¹⁰ in a single layer over which a light pad of dry gauze is placed, and healing is greatly speeded up.

The schedule here outlined—the avoidance of grease and oil, the giving of a narcotic, the application of tannic acid followed by silver nitrate, drying the coagulum, keeping it dry and removing it early, forcing fluids and the stimulation of epithelization—constitutes a superior method of treating serious burns. Less skin grafting and other reconstructive measures are required. There are minimum scars, and greatest of all is the saving of lives that would otherwise be lost.

Medical Arts Building.

NONPARALYTIC POLIOMYELITIS VERSUS CHORIOMENINGITIS

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In the summer and fall months of 1935, physicians in and about Philadelphia observed that many of their patients suffered from a disease of the central nervous system which for the most part presented the following picture: The onset was usually acute, with fever, headache, nausea or vomiting forming the chief triad of symptoms. Examination disclosed some stiffness and rigidity of the neck with increased white cells in the spinal fluid, the majority of which were lymphocytes. The febrile period lasted from seven to ten days, declining by lysis and resulting in complete recovery without evidence of weakness or paralysis. Because of the type of onset, the physical changes and the termination of this disease several diagnoses were made, among which may be listed abortive poliomyelitis, encephalitis, meningismus, influenza, aseptic meningitis and the more recent disease referred to by Armstrong and Dickens¹ as acute lymphocytic choriomeningitis.

Since many physicians believed that they were dealing with an atypical or an abortive type of poliomyelitis, it was considered wise to refer such cases to the Phila-

delphia Hospital for Contagious Diseases for observation and study. Accordingly, late in July, patients presenting the aforementioned syndrome were admitted to a ward of the hospital especially assigned to such cases. This ward is equipped with a cubicle system of isolation, each cubicle having its own medical aseptic technic and containing either two beds or two cribs. Up to November 25, sixty-seven persons with these symptoms and signs were admitted, a summary of which is reported in table 1.

It will be seen from a glance at the table that the symptoms and signs most prevalent were fever, headache, nausea, vomiting and stiffness or rigidity of the neck. The headaches were mostly frontal in type and of a persistent character. The rigidity of the neck, the pains in the legs and neck, the backache, the nasal discharge and the action of the deep reflexes were strikingly similar in character to those observed in poliomyelitis.

Table 2 shows that although the largest number (68.65 per cent) of patients affected were under 10 years of age, a goodly number were credited to those of 10 years or more. The youngest patient in this group was 6 months of age and the oldest 26 years. Thirty-six, or 53.73 per cent, were males and thirty-one, or 46.27 per cent, were females. Of this group forty-nine cases, or 73.13 per cent, occurred in the white race and eighteen, or 26.87 per cent, in the colored race.

Fever was not a very striking feature of this disease, for only six (8.96 per cent) had a temperature of 103 F., whereas thirty-six (53.73 per cent) recorded a temperature of 100 F. or less. Twenty-five patients had a temperature ranging between 100 and 103 F. The average duration of fever in fifty of these patients was 7.05 days. However, when this group is divided into those who did not present evidence of weakness or paralysis and those who did, one finds that in the latter group the average duration of fever was 8.92 days while in the former it was 6.04 days. Of the sixty-seven patients seven were afebrile and ten had a fever which lasted more than two weeks. These were not included in calculating the aforementioned averages. The longest duration of fever, in a child with severe respiratory complications was forty-six days while the shortest was one day.

The majority of the patients had an increased spinal fluid pressure, with an abnormal number of white blood cells. The average cell count was 113 per cubic millimeter. The highest cell count recorded was 1,280 per cubic millimeter, while the lowest was 14 per cubic millimeter. The majority of the cells were of the lymphocytic variety, in many cases totaling 100 per cent. The average chloride was 665 mg., sugar 68 mg. and protein 83 mg. per hundred cubic centimeters.

A glance at table 3 shows that thirty-five, or 52.24 per cent, of the patients were discharged with some evidence of weakness or paralysis. Thirty-two had paralysis of the lower extremities; one leg was involved in eighteen, and both legs were involved in fourteen patients. The three remaining paralytic patients had an involvement of the face and upper extremities. Six of the patients admitted with evidence of weakness or paralysis recovered before discharge, while one patient without paralysis on admission presented it on discharge.

There occurred one death in this series. This, of course, was among the paralytic group. The gross and histopathologic examination confirmed the diagnosis of poliomyelitis.

9. Bettman, A. G.: Burns: Treatment of Shock and Toxemia; Healing the Wound; Reconstruction. *Am. J. Surg.* 20: 33-37 (April) 1933.
10. Bettman, A. G.: A Simpler Technic for Promoting Epithelization and Protecting Skin Grafts. *J. A. M. A.* 97: 1879-1881 (Dec. 19) 1931.
1. Armstrong, Charles, and Dickens, P. F.: *Pub. Health Rep.* 50: 831 (June 21) 1935.

A study of the white blood cells in fifty-two patients without any evidence of weakness or paralysis showed an average count of 10,130 cells per cubic millimeter. The lowest count was 6,160 and the highest 16,160. Twenty-seven patients with evidence of weakness or paralysis had an average cell count of 13,170. The lowest count was 8,160 and the highest was 29,040 per cubic millimeter.

TABLE 1.—Incidence of Signs and Symptoms

Fever.....	79.10%
Headache.....	68.65%
Nausea and vomiting.....	61.19%
Pain in legs.....	14.93%
Pain in neck.....	10.45%
Chill.....	7.46%
Pain in abdomen.....	5.97%
Cough.....	5.97%
Sore throat.....	4.48%
Backache.....	4.48%
Nasal discharge.....	4.48%
Drowsiness.....	4.48%
Photophobia.....	2.99%
Convulsions.....	2.99%
Pain in eyes.....	1.49%
Sneezing.....	1.49%
Frothing at mouth.....	1.49%
Sore neck.....	1.49%
Constipation.....	1.49%
Knee jerks.....	Absent 14.93%
Deep reflexes.....	Absent 8.96%
Stiffness of neck.....	Present 46.27%
Kernig.....	Present 29.85%
Babinski.....	Present 5.97%
Rigidity of spine.....	Present 8.96%
Brudzinski.....	Present 2.99%

COMMENT

In presenting an analysis of this small group of patients admitted to the Philadelphia Hospital for Contagious Diseases from July to November 1935 I am aware of the possibility that they may or may not represent the same type of patients seen by other physicians in this district during the same period. However, in reading the reports of other cases in Philadelphia I am rather favorably impressed with their similarity to this group. It is interesting to note that the records of the Department of Public Health of Philadelphia show that 114 cases of poliomyelitis with six deaths were reported during the year 1935. This is not a normal number for the city, for as a rule there are reported about a dozen cases annually. In this group one finds:

1. Sixty-seven patients ranging in age from 6 months to 26 years.
2. An acute onset with fever, headache, nausea, vomiting and stiffness of the neck in most of the patients.
3. An increased number of white blood cells in the spinal fluid, most of which were lymphocytes.
4. Thirty-five, or 52.24 per cent, of these patients with evidence of weakness or paralysis and thirty-two without.

I am not greatly concerned about the diagnosis of the thirty-five who showed evidence of weakness or paralysis, for I do not believe that any one will dispute the diagnosis of acute anterior poliomyelitis with paralysis in this group, but I am very much concerned with the group of thirty-two patients who were admitted during the same period who were treated in the same ward and who presented the same symptoms as the former group but who showed no evidence of weakness or paralysis on leaving the hospital.

It is natural to wonder whether one is not dealing with the same disease, some cases of which presented

paralysis while others did not. It is also natural to wonder whether one is not dealing with an entirely new disease in this group of nonparalytic patients. They might be cases of acute lymphocytic choriomeningitis, or aseptic meningitis as reported by Gunther,² or perhaps the epidemic serous meningitis as noted by Eckstein.³ Even if the foregoing diagnosis could be made in the thirty-two nonparalytic patients they certainly could likewise be called poliomyelitis without paralysis. Surely the occurrence of this condition during the summer months, the type of onset, the symptoms and signs, and the presence of paralysis in some and the absence of paralysis in others would strongly favor the diagnosis of poliomyelitis. However, it must be admitted that the absence of paralysis and the presence of a high familial tendency may be interpreted by some as sufficient evidence against such a diagnosis.

Hneleski⁴ reports twenty-three cases of acute lymphocytic meningitis in adults and Noone and his associates⁵ report thirty-seven cases of epidemic lymphocytic meningo-encephalitis in children, admitted during the same period to the Philadelphia General Hospital. In reviewing their cases it is interesting to note that the type of onset, the symptoms and signs, and the laboratory observations correspond very closely to this group of cases, except that in no instance did any of their patients show evidence of weakness or paralysis.

These authors do not believe their cases to be a mild poliomyelitis because of (1) the absence of paralysis, (2) the high familial tendency, (3) the failure to produce either choriomeningitis, poliomyelitis or encephalitis in injected guinea-pigs, mice, rabbits and monkeys, and (4) the inability of convalescent serum obtained from their patients to neutralize known virus of choriomeningitis, poliomyelitis and the St. Louis type of encephalitis.

If one pauses for a moment to reflect, one will recall that for many years the medical profession has taught that poliomyelitis without paralysis occurs more frequently than poliomyelitis with paralysis. Draper⁶

TABLE 2.—Percentage Distribution by Age Groups

Under 1 year.....	1.49%
1 to 4 years.....	23.36%
5 to 9 years.....	38.80%
10 to 14 years.....	14.03%
15 to 19 years.....	8.96%
20 plus.....	7.46%

TABLE 3.—Distribution of Paralysis

One leg.....	18
Both legs.....	14
Facial alone.....	1
Facial and one arm.....	1
One leg and both arms.....	1
Total.....	35

states that from 50 to 80 per cent of all cases do not go on to paralysis and he remarks: "This means that the apparent size of any given epidemic in terms of paralysis represents only from a fifth to one-half its actual extent."

2. Gunther, Allan: *Jahrb. f. Kinderh.* 128: 127-154 (July) 1930.

3. Eckstein, A.: *Klin. Wchnschr.* 10: 22 (Jan. 3) 1931.

4. Hneleski, I. S.: Unpublished Report, Philadelphia Neurologic Society, 1936.

5. Noone, E. L.; Habel, Karl, and Riggs, Helen E.: *Epidemic Lymphocytic Meningo-Encephalitis*, Am. J. Dis. Child. 52: 870 (Oct.) 1936.

6. Draper, George: *Infantile Paralysis*, New York, D. Appleton-Century Company, 1935.

Paul, Salinger and Trask⁷ show that the abortive form of poliomyelitis may be from two to five times as common as the form with paralysis. In a community studied by them 84 per cent, in another 82 per cent and in still another 77 per cent had no paralysis.

Again, if one studies the 1916 and 1932 epidemics in Philadelphia,⁸ the 1916 and 1931 epidemics in New York City,⁹ the 1930 and 1934 epidemics in California¹⁰ and the 1935 epidemic in the South¹¹ one cannot help but be impressed by the growing tendency for poliomyelitis (1) to affect the older age groups, (2) to have a lower attack rate, (3) to cause fewer cases of residual paralysis and (4) to show a gradual decrease in the death rate.

A high familial tendency was not a prominent feature in my cases. In this group of sixty-seven patients only eight cases occurred in three families. In the 1931 epidemic in New York City, 3,999 families were affected. Of this number, 3,901, or 97.5 per cent, had one case per family and ninety-eight families, or 2.5 per cent, had more than one case. My percentage figures compare most favorably with these.

The failure to produce disease from nasal washings, spinal fluid and other tissues and the inability to demonstrate the presence of antiviral substances in convalescent serum of patients, even for a known or mixed type of virus, is only presumptive evidence against a disease and is not absolute. Kolmer¹² states that from 12.1 to 63.2 per cent (average 34.9 per cent) of those who have had an attack of poliomyelitis may not have antiviral substances in their blood.

Therefore, if one is to make the clinical diagnosis of acute lymphocytic meningitis, acute lymphocytic choriomeningitis, acute epidemic meningo-encephalitis in the type of cases herein reported, one must deny the existence of poliomyelitis without paralysis, and no case could be safely diagnosed poliomyelitis unless there was evidence of weakness or paralysis. It is true that in the laboratory a virus which behaves differently from that of poliomyelitis has been isolated by many investigators, but this is of no help to the physician in practice. From the public health point of view it is much safer and wiser, at the present time, to handle such patients as having acute anterior poliomyelitis without paralysis.

In view of the facts presented, I believe that Philadelphia, like other districts, experienced a mild or an atypical form of poliomyelitis in 1935.

Front and Luzerne streets.

7. Paul, J. R.; Salinger, R., and Trask, J. D.: *Am. J. Hyg.* **17**: 587 (May) 1933.

8. Henry, J. N., and Johnson, G. E.: *Acute Anterior Poliomyelitis in Philadelphia*, *J. A. M. A.* **103**: 94 (July 14) 1934. Lucchesi, P. F.: *Am. J. M. Sc.* **188**: 515 (Oct.) 1934.

9. Poliomyelitis, International Committee, Baltimore, Williams and Wilkins Company, 1932.

10. Articles on Poliomyelitis, *Am. J. Pub. Health* **24**: 1204-1213 (Dec.) 1934.

11. Articles on Poliomyelitis, *Am. J. Pub. Health* **26**: 95-112 (Feb.) 1936.

12. Kolmer, J. A.: *Susceptibility and Immunity*, *J. A. M. A.* **105**: 1956 (Dec. 14) 1935.

A Seeming Paradox.—It has been a seeming paradox that the medical profession has so consistently endeavored to make of the world a place where there is a constantly lessening need for the medical man. He is, indeed, already feeling the effect of these efforts, and as he becomes more and more a servant of the public health, and less and less a prescriber for individual ills, he philosophically accepts and humanely welcomes this outcome of medical discoveries which the experimental method has already given and will increasingly continue to give.—Cushing, Harvey: *Consecratio Medici and Other Papers*, Boston, Little, Brown & Co., 1928.

THE ADDIS COUNT IN CHILDREN

FOLLOWING CLINICAL RECOVERY FROM POST-
INFECTIOUS NEPHRITIS

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CHICAGO

A method for the quantitative estimation of the constituents of urinary sediment was described by Addis¹ in 1925. He advanced the idea that the type of renal pathology might be predicted from study of the sediment. The following year he² published what he considered to be normal figures for the various constituents, particularly red blood cells, leukocytes and epithelial cells, and casts. Since that time Goldring³ has made studies of the sediment of clinically well adults and of adults with nephritis, rheumatic heart disease, subacute bacterial endocarditis and pneumonia. His averages for normal adults were higher than those of Addis. Naeraa⁴ has reported figures for well adults higher than those of Addis and lower than those of Goldring. He also made the interesting observation that the number of red blood cells increases with the age of the individual.

The first work with children in this field was reported by Rew and Butler,⁵ who studied the urinary sediment from three groups of children: sixteen children with no known kidney disease or recent infection of any kind, sixteen children during or just subsequent to acute infections, five children with nephritis, and one with nephrosis. The latter determinations were made during active stages of the kidney disease. Lyttle⁶ studied the sediment of a group of normal children and set up normal standards for the various constituents; he⁷ also made studies of the sediment of children with scarlet fever. Palacios and Otero⁸ have also made determinations of the urinary sediments of normal children, and the results obtained agree in general with those of the other authors; their red blood cell counts were slightly higher. We have not found any records of determinations made on children who have clinically recovered from acute postinfectious hemorrhagic nephritis.

In our clinic we have been particularly interested in both the immediate and the ultimate prognosis of acute postinfectious hemorrhagic nephritis in children. We have used a follow-up system in our dispensary to observe these children personally once or twice a year after recovery until they become too old for our clinic. More recently we have made provisions to follow them on through adolescence and the "teen" age. We have been able to show that after these children recover from their nephritis they remain completely well and are free from kidney disease as far as we can determine by the usual clinical and laboratory procedures. It occurred

1. Addis, Thomas: *Clinical Classification of Bright's Disease*, *J. A. M. A.* **85**: 163 (July 18) 1925.

2. Addis, Thomas: *Number of Formed Elements in Urinary Sediment of Normal Individuals*, *J. Clin. Investigation* **2**: 409 (June) 1926.

3. Goldring, William: *Clinical Application of Sediment Counts* (Addis), *Am. J. M. Sc.* **182**: 105 (July) 1931; *Kidney in Acute Infection*, *Sediment Count (Addis) in Lobar Pneumonia*, *J. Clin. Investigation* **10**: 355 (June) 1931.

4. Naeraa, Asger: *Determination of Sediment According to Addis Method*, *Normal Values*, *Hospitaltid.* **77**: 1445 (Dec. 25) 1934.

5. Rew, W. B., and Butler, A. M.: *The Addis Sediment Count in Children*, *J. Pediatr.* **1**: 216 (Aug.) 1932.

6. Lyttle, J. D.: *Addis Sediment Count in Normal Children*, *J. Clin. Investigation* **12**: 87 (Jan.) 1933.

7. Lyttle, J. D.: *Addis Sediment Count in Scarlet Fever*, *J. Clin. Investigation* **12**: 95 (Jan.) 1933.

8. Palacios, F. G., and Otero, M. B.: *Sediment Count in Cell Counting Chamber*, *Study of Urine of Normal Children*, *Pediatrics* **24**: 59 (Feb.) 1935.

to us that a study of the urinary sediment of these children might be of benefit in assisting us to determine more definitely the condition of their kidneys.

MATERIAL AND TECHNIC

We have observed approximately 250 children who have had acute postinfectious hemorrhagic nephritis and have made a clinical recovery. Twenty-five of these, or about 10 per cent, were selected for this study. We attempted to select a representative cross section of the total group for our study, although in general the children observed suffered from more severe and more prolonged illnesses than did the average of the entire group. Table 1 includes a complete list of the children, with a brief summary of the clinical history and course of illness. In this table is also noted the length of time between the onset of nephritis and the Addis count; this varies from one-half to eight years.

Two classes of patients are generously included in this study: those with acute cerebral manifestations and those with a persistent albuminuria following an otherwise complete recovery. Ten of the twenty-five children had enough evidence of cerebral involvement, such as hypertension, twitchings, convulsions or coma, to cause special notations to be made on their records. This is a higher percentage than that in the group as a whole. Also, four children in this group had albuminuria which persisted longer than three months, while we have had only eight in the entire group who have behaved in this manner.

All of the patients but one (patient 8) had a definite history of an acute febrile infection preceding the nephritis. In this one case it was not possible to get a history of the nature of the preceding infection; he was stuporous on admission and the blood pressure was high. He made a rapid recovery, following administration of magnesium sulfate. There were nineteen boys and six girls. The preponderance of the former is explained by the fact that some of our specimens had to be collected at home and that it is easier under home conditions to obtain urine free from extrarenal white and epithelial cells from boys.

Two of the boys had had two distinct attacks of nephritis, each followed by complete recovery. One boy (patient 4) passed less than 2 ounces of urine a day for two weeks, and then, following diuresis, made a complete recovery.

The methods used for collecting specimens and making the counts were those described by Addis, as modified by Lyttle for children. Fluids are severely restricted during the day preceding the collection of urine; then all the urine passed between 7 p. m. and 7 a. m. is collected in one container. A definite quantity of the urine is centrifugated at a given speed for a given length of time and a quantitative estimation of the formed elements is made in a counting chamber. From this figure the total number of cells and casts in the twelve hour specimen is calculated. We too have observed the impracticability of restricting fluids severely in children, but all specimens reported here were acid in reaction and of specific gravity 1.018 or higher. Total protein determinations were not made.

Counts were made on children from other wards in order to familiarize ourselves with the technic. Counts were also made on children with active nephritis and nephrosis and in all of these the expected high figures were obtained. These two groups of children thus served as controls.

Because of lack of space, seven of the twenty-five children could not be hospitalized. In each of these

TABLE 1.—Clinical History of Twenty-Five Patients

Case No.	Summary of History* and Examination	Interval Between Onset of Nephritis and Addis Count	
		Addis Count	Addis Count
1	Otitis media; questionable history of scarlet fever; hemolytic streptococcus abscess over clavicle; very ill; uneventful recovery	5 yrs.	R: 0 W&E: 64,444 C: 0
2	Otitis media; marked hypertension; function moderately decreased; uneventful recovery following mastoidectomy	1 yr.	R: 60,000 W&E: 600,000 C: 0
3	Scarlet fever; admitted with acute cerebral complications; convulsion and marked hypertension; elevation of blood chemistry figures; rapid recovery	4 yrs.	R: 0 W&E: 0 C: 0
4	Streptococcal throat infection followed by cervical adenitis; moderate edema with almost complete suppression of urine for two weeks; rapid recovery	2 yrs.	R: 0 W&E: 450,000 C: 0
5	Scarlet fever; mild nephritis; albuminuria persisted for three months	3 yrs.	R: 0 W&E: 302,500 C: 36,661
6	Febrile illness with rash—probably scarlet fever; blood chemistry figures high; rapid recovery	6 yrs.	R: 41,666 W&E: 402,777 C: 13,888
7	Febrile illness with rash—probably measles; marked edema; albuminuria persisted for three years	4 yrs.	R: 94,000 W&E: 732,000 C: 0
8	Nature of preceding infection not known; admitted in stupor with cerebral complications; uneventful recovery	3½ yrs.	R: 0 W&E: 816,666 C: 0
9	Cervical adenitis and otitis media; mild nephritis; gradual, uneventful recovery	4½ yrs.	R: 74,444 W&E: 297,777 C: 18,611
10	Scarlet fever; complete recovery from nephritis in few weeks except for persistent albuminuria, which cleared up after about twenty months	2 yrs.	R: 57,200 W&E: 234,000 C: 0
11	Acute infection of upper respiratory tract; nephritis with acute cerebral complications; uneventful recovery	3 yrs.	R: 0 W&E: 330,000 C: 12,210
12	Two separate attacks of nephritis with preceding throat and ear infections in each case; threatened cerebral edema with first	8 yrs. and 4 yrs.	R: 0 W&E: 0 C: 0
13	Mild nephritis with uneventful recovery. See text for explanation of abnormal count	1 yr.	R: 8,000,000 W&E: 15,200,000 C: 30,000
14	Scarlet fever; edema and hypertension; uneventful recovery	2½ yrs.	R: 0 W&E: 0 C: 0
15	Acute throat infection; mild nephritis; albuminuria and slight hematuria persisted for about six months; complete recovery after tonsils and adenoids were removed	1 yr.	R: 0 W&E: 123,330 C: 0
16	Febrile infection with rash—probably scarlet fever; edema; hypertension; blood and casts in urine for one year; albuminuria for two years; complete recovery	5 yrs.	R: 7,888 W&E: 157,777 C: 15,788
17	Scarlet fever; mild nephritis with complete recovery; measles one year later with no exacerbation of nephritis	2½ yrs.	R: 0 W&E: 990,000 C: 15,000
18	Acute throat infection followed by cervical adenitis; edema; anemia; complete recovery after one month	3 yrs.	R: 0 W&E: 650,000 C: 0
19	Acute throat infection; nephritis with uneventful recovery	1 yr.	R: 0 W&E: 390,000 C: 0
20	Acute throat infection followed by pneumonia and empyema; marked edema; cerebral complications; uneventful recovery	2½ yrs.	R: 26,400 W&E: 559,200 C: 0
21	Acute upper respiratory tract infection; severe nephritis; cerebral complications; albuminuria for three months	2½ yrs.	R: 0 W&E: 486,000 C: 0
22	Two attacks of postinfectious nephritis; first followed by scarlet fever; complete recovery; second attack six years later followed acute throat infection; patient entered hospital in coma and convulsions; marked edema; severe nephritis; complete recovery after one month	7 yrs. and 1 yr.	R: 0 W&E: 410,000 C: 0
23	Acute upper respiratory tract infection with cervical adenitis; mild nephritis followed by complete recovery	3 yrs.	R: 0 W&E: 41,000 C: 0
24	Acute throat infection with cervical adenitis; uneventful recovery	2½ yrs.	R: 0 W&E: 0 C: 0
25	Acute throat infection with cervical adenitis; rather severe nephritis with moderate hypertension; recovery after one month	4 yrs.	R: 0 W&E: 0 C: 0

* All patients had albuminuria, hematuria and cylindruria in the acute stage of their nephritis.

Explanation of symbols used in table: R, red blood cells; W&E, white and epithelial cells; C, casts.

instances the mother was given detailed written instructions and the specimens were obtained at home. These proved as satisfactory as those obtained in the hospital with the exception of specimens collected from girls. Several of the latter were rejected because of excess of epithelial and white blood cells. Of the seven home specimens, only one was from a girl.

RESULTS

The results of the cell and cast determinations for each child are shown in table 1. With the exception of one girl (patient 13) the figures correspond well with those established by Lyttle for normal children. This girl had a moderately severe case of acute postinfectious hemorrhagic nephritis about one year previous to this study and made a complete clinical recovery. After she was discharged from the hospital she was observed in the dispensary with normal urine and negative observations. Her first Addis count was abnormally high for all formed elements and she was readmitted to the hospital for a second count about two weeks later. The results of the two counts were practically the same. We did not feel that the manifestations were due to a chronic or latent nephritis and she was admitted to the general pediatric service for further study and diagnosis. Intravenous pyelograms revealed a hydronephrosis on one side and a diagnosis was made by the urologist of a pyogenic or tuberculous infection of the kidney. She is to be observed carefully and the ultimate outcome will be reported.

Table 2 compares the limits for cells and casts established by Addis for normal adults, Lyttle for normal children, and our group of postnephritic children; the averages for these groups also are given. It will be noted that the average number of red cells, not including the one exception mentioned, is 19,817, as compared to Lyttle's average of 15,181 for normal children. For white and epithelial cells our average is 337,707, as compared to his normal of 322,184. The average number of casts is 3,410; Lyttle's average was 1,085. Our percentage of zero cast counts and zero red blood cell counts compares very favorably with those of Lyttle for normal children: 64 per cent for the former in our series as compared to his 73 per cent, and 72 per cent for the latter as compared to his 67 per cent. However,

no correlation between the number of casts and that of red blood cells. Some specimens with no blood cells have casts and some with no casts have blood cells.

SUMMARY AND CONCLUSIONS

1. Quantitative determinations were made of the constituents of the urinary sediment obtained by the method of Addis from twenty-five children who had clinically recovered from acute postinfectious hemorrhagic nephritis for periods of from one-half to eight years.
2. With the exception of one girl, the figures obtained correspond very closely to those obtained on normal children. This one girl, who had an abnormally high count, was found to have a hydronephrosis.
3. Except in this one case, pathologic sediments were not found when ordinary clinical and laboratory procedures gave normal reactions.
4. We feel that our results furnish further evidence toward the view that children who have clinically recovered from acute postinfectious hemorrhagic nephritis do not have subacute or latent nephritis. In this work clinical recovery implies absence of all known symptoms and signs of nephritis, as well as completely negative urinalyses as routinely conducted.

APPENDICITIS

A STATISTICAL SURVEY OF 10,000 CONSECUTIVE CASES AT PROVIDENCE HOSPITAL

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DETROIT

The data collected for this survey are based on all the clinical cases of appendicitis registered in Providence Hospital, Detroit, during the decade January 1925 to May 1935 and represent the treatment of 10,000 cases by approximately twenty-five different surgeons. The statistics are the result of critical analyses of all appendix cases, the combined information of clinical history and histopathologic reports. More than 98 per cent of all the appendixes were examined histopathologically by the senior author. In cases in which disagreement arose between the clinical and the tissue diagnosis, the sections were reviewed or additional sections were cut and examined. The pathologist's diagnosis was then adopted in classifying the case, but in some instances both the clinical and the histopathologic information was relied on for this purpose.

The clinical diagnoses of acute appendicitis corresponded with the pathologic diagnoses in 85.6 per cent of the cases.

One of the primary purposes in making this survey was to determine accurately the mortality rate in cases of appendicitis in this hospital. There were 379 deaths recorded in the 10,000 cases reviewed for the decade, giving an uncorrected death rate of 3.79 per cent for all cases with a clinical diagnosis of appendicitis.

Of the deaths indicated in table 1, ninety-three occurred in the chronic appendicitis group, constituting 1.3 per cent of all chronic cases and 24.5 per cent of all deaths; 257 deaths occurred in the acute appendicitis group, constituting 9.92 per cent of the acute cases and 67.8 per cent of the total deaths; twenty-nine deaths occurred in an unclassified group of cases in

TABLE 2.—Limits for Cells and Casts

	Adults (Addis)	Normal Children (Lyttle)	Postnephritic Children
Casts			
Range.....	0 to 4,270	0 to 12,916	0 to 18,611
Average.....	1,040	1,085 ± 123	3,401
Red blood cells			
Range.....	0 to 425,500	0 to 129,000	0 to 114,000
Average.....	65,750	15,181 ± 1,400	19,817
Epithelial and white blood cells			
Range.....	32,400 to 1,835,000	9,000 to 2,822,000	0 to 990,000
Average.....	322,500	322,184 ± 23,500	337,706

in our patients when casts were found they were present in slightly greater number; his highest cast count was 13,000 and ours was 18,600. When the extremely large factor used in calculations is considered, this is not a great difference and may be considered to be within the limits of ordinary error in counting. A difference of one cell per square in the chamber makes a difference of 10,000 in the total specimen.

Naeraa⁴ made an observation in normal adults which we noted in our group of children: there is apparently

which insufficient clinical data were recorded or no operation was performed. These twenty-nine deaths constituted 11.51 per cent of the unclassified group of cases and 7.7 per cent of the total deaths. This last group of cases includes justifiable exemptions from the total reported because appendectomy operations were not performed or deaths resulted from causes other than the removal of the appendixes.

THE INFLUENCE OF SEX

Sex was recorded in 9,382 cases; 6,076 were females and 3,306 were males.

The factors explaining the high incidence in females were the predominance of female admissions to the hospital and the frequency of removal of the appendix incidentally to other operative procedures in the female. In eighty-four cases normal appendixes were removed as a prophylactic procedure during female pelvic operations. Deaths in females constituted 45.3 per cent of the total fatalities, and about 80 per cent of chronic cases occurred in the female patients.

The simple acute, suppurative, gangrenous and ruptured forms of appendicitis were encountered much more frequently in males, and this is responsible for the high mortality rate in this sex.

There were 169 deaths among the 6,076 female patients, giving a mortality rate of 2.8 per cent; 201 deaths occurred among the 3,306 male patients, giving a mortality rate of 6.1 per cent.

AGE GROUPS AND MORTALITY

The age of patients was recorded in 7,434 cases, the youngest being 10 months of age and the oldest over 80 years. These cases, when arranged in age groups, show the following interesting percentages:

Children under 5 years of age numbered eighty-two, or 1.1 per cent of the total of 7,434 cases of appendicitis; the deaths in this group numbered fifteen, or a mortality rate of 18.3 per cent.

Children from 5 to 10 years of age numbered 320, or 4.3 per cent of the total group; the deaths numbered twenty-eight, or a mortality rate of 8.8 per cent.

Individuals between 10 and 40 years of age numbered 6,147, or 82.5 per cent of the 7,434 cases; the mortality rate in this group was 2.86 per cent.

Cases in the age group of 40 to 50 years numbered 631, or 8.5 per cent of the total group, with a mortality rate of 7.8 per cent.

Cases in the age group of 50 to 60 years numbered 201, or 2.7 per cent of the total; the deaths numbered thirty-seven, or a mortality rate of 18.4 per cent. This rate will be observed as almost identical with that encountered in the first five year period.

The cases of appendicitis in the age group over 60 years numbered thirty-three, or 0.7 per cent of the total; the mortality rate in this group was 34 per cent, being the highest obtained for any age.

It is evident that the age groups 1 to 10 years and 50 to 90 years contributed 79.5 per cent of the total mortality. Extremes of life, therefore, produce the fewest number of cases but yield the highest mortality rates.

The greatest incidence of appendicitis was in the 20 to 30 year period, or 3,626 cases, with seventy-one deaths in this group, a mortality rate of 2.3 per cent. This is a distinct contrast with the statement of H. M. Beebe that the greatest risk appears during this life period.

There were 402 cases in children under 10 years of age, 75.4 per cent of which were classified as acute.

Moreover, 10.3 per cent of all ruptured appendixes were found in this small age group. The high mortality in young children is due to the high incidence of appendicitis in the acute form in this group, and especially the occurrence of rupture.

TEMPERATURE RELATIONSHIPS

In 85.1 per cent of all cases there was an admission temperature of between 97 and 100 F.

In 40.3 per cent of the cases in which appendixes were ruptured the admission temperature was over 100 F.

TABLE 1.—*Classification of Cases of Appendicitis, Providence Hospital, 1925-1935*

Type of Case	No. of Cases	Percent- age of Cases	No. of Deaths	Uncorrected Death Rate, Percentage*
Chronic.....	7,147	71.47	93	1.30
Acute.....	2,590	25.90	237	9.92
Simple acute.....	1,430	14.30	94	6.57
Acute gangrenous.....	760	7.60	61	8.02
Acute ruptured.....	400	4.00	102	25.50
".....	2	0.02	0	0
".....	9	0.09	0	0
".....	232	2.52	29	11.51
Totals.....	10,000	100.00	379	3.79
Corrected death rate.....				2.92

* All deaths based on clinical diagnosis of appendicitis.

† Insufficient clinical data or no operation performed.

In only 4.8 per cent of all the chronic cases was the admission temperature over 100 F.

In 68.2 per cent of cases terminating fatally the temperature was between 102 and 104 F. This high temperature was reached within five days after operation in 83.7 per cent of the cases, and in the simple acute, gangrenous and ruptured forms it was reached within two days after operation.

RELATIONSHIP OF TYPE OF APPENDICITIS TO PERIOD OF CONVALESCENCE

Only 5.4 per cent of the cases of chronic appendicitis required more than twenty days for recovery. Of the acute forms, 12.5 per cent required more than twenty days for recovery, and 31.2 per cent of the ruptured appendix cases required more than twenty days.

From the standpoint of mortality, the first week after operation was the most dangerous period, 74.1 per cent of deaths having occurred during that time.

RELATION OF BLOOD PICTURE TO APPENDICITIS

Blood counts were recorded in 6,601 cases; of these, sixty-five cases showed a leukopenia and fifty-nine of the sixty-five cases were in the chronic group, four were in the simple acute, one was gangrenous and one was ruptured. Five deaths, or 7.7 per cent, occurred in this leukopenic group.

In 3,086 cases the leukocytes numbered from 5,000 to 10,000; 2,776 of these were classed as chronic appendicitis, 246 as simple acute, thirty-three as gangrenous, and thirty-one as ruptured. Fifty-nine deaths occurred, a mortality of 1.6 per cent.

In 2,265 cases there was a leukocytosis of from 10,000 to 15,000; 1,623 of these were classed as chronic, 490 as simple acute, 104 as gangrenous, forty-seven as ruptured, and one as a tuberculous appendix. Forty-three deaths in this group gave a mortality of 1.9 per cent.

In 1,031 cases a leukocytosis of from 15,000 to 25,000 occurred; 378 of these were classed as chronic, 372 were simple acute, 186 gangrenous, ninety-four ruptured, and one was a carcinoid appendix. There were 124 deaths, or a mortality of 12 per cent.

air. A ring of anthers containing millions of pollen grains appears at the base of the head when flowering begins.³ The grains are hung in such a fashion that the lightest jar shakes them, thereby floating them out into the air. Pollination begins about May 15 and continues until early September, only small amounts being disseminated after July 1.



English plantain.

Common or broad leaved plantain is not nearly so abundant in the United States as is the English variety. It grows only on low, moist land. It does not bloom as early as the English variety but continues throughout the summer.

LITERATURE

Scheppegrell⁴ listed plantain among the minor group of plants causing hay fever. Walker⁵ considered uncomplicated plantain hay fever a rarity, having seen only two such cases in New England. Thommen⁶ has seen only four plantain cases in seven years and therefore believes that it is one of the minor causes of hay fever. The only attempt to establish the incidence of this type of hay fever was Bernton's⁷ study of 116 cases of hay fever. The subcutaneous test was used as a criterion for clinical sensitivity; that is, from 3 to 20 pollen units was injected subcutaneously and read as positive if an area of erythema and edema appeared within twelve to twenty-four hours. He believed that the subcutaneous test corresponded more closely with mucous membrane sensitivity than either the intracutaneous or the cutaneous test. Using the subcutaneous test and the pollen of English plantain, he found five out of 116 patients sensitive, an incidence of 4.3 per cent. Four of these five cases were from a group of twenty-four patients having vernal hay fever, an incidence of 16.6 per cent.

3. Galloway, B. T., quoted by Bernton.⁷

4. Scheppegrell, William: The Immunologic Classification of Common Hay Fever Plants and Trees, New York M. J. 117: 721 (June 20) 1923.

5. Walker, I. C.: Frequent Causes and the Treatment of Seasonal Hay Fever, Arch. Int. Med. 28: 71-118 (July) 1921.

6. Thommen, A. A., in Coca, Walzer and Thommen: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., C. C. Thomas, 1931, p. 759.

7. Bernton, H. S.: Plantain Hay Fever and Asthma, J. A. M. A. 84: 944-946 (March 28) 1925.

PROCEDURE

In order to ascertain the incidence of plantain hay fever it was decided to review all the hay fever cases that had come under observation at the Allergy Clinic of Temple University Hospital. The relative frequency of positive skin reactions in both the vernal and the fall types of hay fever was noted. All patients showing moderately positive skin reactions to plantain pollen were tested by the ophthalmic⁸ and nasal routes,⁹ the latter being our chief criterion for clinical sensitivity. These tests were especially valuable in those cases in which the clinical history was indefinite or coincided with the pollinating period of the grasses. Passive transfer tests after the method of Prausnitz-Küstner were performed on all clinically sensitive patients to determine the presence of reagins. Neutralization and cross-testing both in the passively sensitized skin sites and in the test tube were carried out to determine the antigenic relationship, if any, between English and common plantain.

RESULTS

Of the 213 cases reviewed, thirty-three were incompletely studied, leaving 180 cases that were considered sufficiently satisfactory to be included in the present report. These cases may be divided into three groups: first, those giving a history of seasonal fall hay fever, of which there were 110; second, those giving a history of seasonal spring hay fever, of which there were forty; and, finally, those giving a history of both spring and fall hay fever, of which there were thirty. The accompanying table will show that the greatest percentage of



Common plantain.

positive skin reactions occurred in the spring and fall or combined group 46.6 per cent, next in the spring group 42.5 per cent, and least of all in the fall group 18.1 per cent. Positive skin reactions occurred in 28.3 per cent of the 180 patients studied. Dry pollen ophthalmic and

8. Peshkin, M. M.: Dry Pollen Ophthalmic Test in Pollen Asthma and Hay Fever Patients Negative to Cutaneous Tests, J. Allergy 3: 29-29 (Nov.) 1931.

9. Efron, B. G., and Penfound, W. T.: Nasal Test with Dry Pollen in Diagnosis of Seasonal Hay Fever, J. Allergy 2: 43-47 (Nov.) 1930.

nasal tests were done in 105 of the 180 cases, or 58.3 per cent of the group. Care was taken to insure the completion of these tests in every case that yielded a positive skin reaction, so that we would not overlook an occasional patient who was clinically sensitive. It will be seen that not one case of plantain hay fever was found in those patients who had a history of seasonal autumnal hay fever only. On the other hand, seven of the forty patients with spring hay fever exhibited clinical

Results of Tests

Type of Hay Fever	Number of Cases Studied	Number of Moderate or Marked Skin Reactions to Plantain	Number of Eye and Nasal Tests Performed	Number of Clinical Cases
Fall.....	110	20 or 18.1%	68	0
Spring.....	40	17 or 42.5%	19	7 or 17.5%
Spring and fall.....	30	14 or 46.6%	18	7 or 23.3%
Total.....	180	51 or 28.3%	105 or 58.3%	14 or 7.7%

cal sensitivity to plantain pollen, an incidence of 17.5 per cent, and seven of the thirty, or 23.3 per cent of the spring and fall or combined type, showed clinical sensitivity. In other words, plantain pollen was an etiologic factor in 20 per cent of the spring variety of hay fever and in 7.7 per cent of all types of hay fever.

Passive transfer studies with the serums of sensitive patients showed that reagins for both common and English plantain were present in all fourteen cases. When passively sensitized sites were exhausted with one of the plantains they failed to react to the other plantain extract, in each one of the eight cases studied. Likewise, when reagin-containing serums were neutralized in vitro with an equal amount of English plantain pollen (containing 0.42 mg. of nitrogen per cubic centimeter) and allowed to stand for twenty-four hours before passive transfer sites were prepared, they also failed to react to common plantain after a lapse of from twenty-four to forty-eight hours. The same was also true when each of the eight serums was neutralized with common plantain and tested with English plantain. These results indicate that the English and common plantain pollen contain a common antigenic factor. That the plantain antigen is in no way related to either timothy or ragweed was shown by our ability to obtain positive reactions to plantain after the timothy and ragweed reagins in the serums had been neutralized with timothy or ragweed pollen extract. This contention is further borne out by the fact that after neutralization with one of the plantains either by exhaustion or in vitro we were still able to obtain a positive reaction to either timothy or ragweed pollen extract.

COMMENT

One of the previous difficulties in establishing a diagnosis of plantain hay fever has been the inability to differentiate it from that of timothy or other grasses whose period of pollination coincides with that of plantain. The dry pollen ophthalmic and nasal tests provide additional methods of establishing accurate etiologic diagnoses in hay fever patients. These tests aid in detecting the presence or absence of clinical sensitivity. They manifest their greatest usefulness in distinguishing the clinical importance of those pollens in which the pollinating periods coincide.

Plantain is considered a weed by most authorities and yet it makes its appearance at the same time as the grasses. It is not at all surprising, therefore, that all our cases of clinical sensitivity to plantain pollen

occurred in patients giving histories of spring hay fever. It is likewise interesting to note that we encountered five cases of uncomplicated plantain pollen hay fever, a condition considered rather uncommon by most observers.

Unsuccessful results in the treatment of spring hay fever frequently lie in the incorrect etiologic diagnosis and the subsequent error of not combining plantain pollen with the grass pollens used. That this is a requirement for good results in the treatment of combined grass and plantain hay fever is proved by the fact that no antigenic relationship exists among the pollens of plantain, the grasses and the weeds. We encountered several failures in the treatment of spring hay fever in which successful results followed the inclusion of plantain extract along with the grass pollen extract. We were gratified by the excellent results obtained by hyposensitization in this group of patients.

CONCLUSIONS

1. In a group of 180 thoroughly studied hay fever patients we encountered fourteen cases of plantain sensitivity, an incidence of 7.7 per cent.
2. In a group of seventy patients with spring hay fever, plantain pollen was found to be an etiologic factor in 20 per cent.
3. Antigenically the pollens of English and common plantain are identical.
4. The pollens of timothy and of ragweed bear no relation to those of plantain.
5. Treatment by hyposensitization yielded excellent results in all cases.
6. The use of the dry pollen nasal test is an invaluable aid in arriving at a correct diagnosis of plantain hay fever, especially when a grass hay fever coexists.

Clinical Notes, Suggestions and
New Instruments

FAMILIAL CONGENITAL HEART DISEASE
PATENT DUCTUS ARTERIOSUS IN SISTERS
DAVID B. SNELLING, M.D., MONTGOMERY, ALA.

Although patent ductus arteriosus or persistent ductus botalli is one of the more common forms of congenital heart disease, its occurrence in members of the same family is a rarity and hence seems worthy of reporting. The cases to be reported here were discovered during the routine examination of one of the sisters. When told of the condition and reassured about it, she stated that she was aware of the situation, that it had never perturbed her, and that her older sister had the same condition and had told her it was nothing to worry about. Accordingly the older sister was requested to report for examination.

There was no family history of cardiac disease. Neither the father nor the mother or a living brother exhibited a heart murmur.

REPORT OF CASES

CASE 1.—An unmarried white student nurse, aged 20, had no complaints. She was a full term child with a normal delivery. She was not a "blue baby." She had had diphtheria, whooping cough and measles in childhood without complications. Three years before she came under observation she had an appendectomy for an acute attack of appendicitis. Recovery was uneventful. She stated that since childhood she had noted dyspnea and palpitation on exertion, which she thought might possibly be a little more prominent than in other normal girls of her age, but she was rather vague about this. At 6 years of age a preschool examination revealed a heart murmur and she was advised to go to bed for a year. This advice was disregarded and she has led practically a normal life since.

The patient was of rather asthenic habitus. Her height was 5 feet 5½ inches (167 cm.) and weight 115 pounds (52 Kg.). There was no cyanosis of the face or extremities or clubbing of the fingers. The positive physical signs were confined to the heart. Examination of this organ revealed a very faint systolic thrill at the base. The left border of dulness and the apex impulse were 8.5 cm. to the left of the midsternal line in the fifth interspace just inside the midclavicular line. The right border of dulness was at the right sternal margin. There was no widening of the retromanubrial dulness. There was a continuous machinery-like murmur with systolic accentuation heard all over the precordium but loudest in the second left interspace, where it was so loud that it obscured the normal first and second sounds. At the apex it was relatively quite faint. It was faintly transmitted all over the chest anteriorly as well as to the left axilla. It was heard with still more difficulty posteriorly over both interscapular regions and at the left base. It was not heard above the clavicles. The radial pulses were equal, the rhythm was regular, the rate was 78 and the vessel walls were not remarkable. The blood pressure was 100 systolic, 60 diastolic. The lungs were clear and there were no other signs of decompensation.

The Kahn and Wassermann reactions were negative. Erythrocytes numbered 4,300,000, leukocytes 7,300. Hemoglobin was 84 per cent. Blood smear and differential count were normal. The urine was normal. The electrocardiogram was normal in four leads, there being no right axis deviation. A teleroentgenogram showed the width of the heart shadow to be within the limits of normal, the greatest transverse diameter of the thoracic cage being 28.5 cm. and that of the heart silhouette 13 cm. The pulmonary conus was not prominent.

CASE 2.—A graduate nurse, aged 28, had no complaints. She was born at term; the mother was jaundiced at delivery. Labor was prolonged but was otherwise normal. The patient was not a "blue baby." Generally her health had been good. She had typhoid at 2 years of age and catarrhal jaundice at 8, and she had been operated on for acute appendicitis when she was 12. She never had rheumatic fever, scarlet fever or diphtheria. She was subject to periodic headaches. There had been no signs or symptoms of cardiac decompensation. She stated that since childhood she had always had the "feeling of a little stream of water about the size of the stream from a hypo needle" in the region of the second left intercostal space. This had varied somewhat in intensity but had never been entirely absent. She had thought this normal until she was 14 years of age, when she was confined to bed for a few days because of an "upset stomach." The heart murmur was discovered then for the first time. Although prolonged rest in bed was recommended, she continued to lead a fairly normal existence. Her history otherwise is negative.

The patient was undernourished, her height was 5 feet 4½ inches (163 cm.) and her weight 96 pounds (43.5 Kg.). There was no cyanosis of the face or extremities and no clubbing of the fingers. The neck veins were not distended. The positive signs were confined to the heart and in this respect she was almost a "carbon copy" of her sister. There was a faint continuous thrill with systolic accentuation to the left of the sternum in the region of the first and second ribs. The left border of dulness and apex impulse were 7.5 cm. to the left of the midsternal line in the fifth interspace. There was no widening of the retromanubrial dulness. There was a continuous machinery-like murmur with systolic accentuation heard all over the precordium but loudest in the first and second interspaces to the left of the sternum; there it was very loud. The murmur was relatively quite faint but audible at the apex. The normal first and second heart sounds could be heard only at the apex. At the base they were obscured by the murmur. The systolic portion of the murmur was transmitted to all parts of the chest, but anteriorly in the left side of the chest and in the left axilla both systolic and diastolic portions were heard. It was not transmitted above the clavicles. It will be seen that the only difference in the signs presented on examination of the two hearts is the extent to which the diastolic portions of the thrill and murmur are transmitted. The radial pulses were equal, the rhythm regular and the rate 80 per minute. The blood pressure was 106 systolic, 60 diastolic. The lungs were clear, and examination revealed no other abnormalities.

The Kahn and Wassermann reactions were negative. The blood count was normal except for slight secondary anemia.

The electrocardiogram was normal in four leads, there being no right axis deviation. A teleroentgenogram showed the width of the heart shadow to be at the upper limit of normal, the greatest transverse diameter of the thoracic cage being 21 cm. and that of the heart silhouette 10.5 cm. The pulmonary conus was not prominent.

COMMENT

The occurrence of such a congenital anomaly in members of the same family is of particular interest in view of the paucity of reports in the literature of such occurrences. However, the familial incidence of congenital abnormality of the heart was noted over a century ago and at least one such observation was described some forty years before the publication of the first book on congenital heart disease by Peacock¹ in 1858. Tedesco² in reporting two cases of familial congenital heart disease in sisters, one with an interventricular septal defect and pulmonic stenosis, the other with an interventricular septal defect and mitral stenosis, gave a concise summary of the literature on this topic:

"The first observation [on record] is that of Cooper and Englenot (1818), who speak of twelve brothers, most of whom presented from birth indubitable signs of heart disease. Two of these died at a rather advanced age, and necropsy revealed a definite stenosis of the isthmus of the aorta, persistence of the ductus botalli and perforation of the superior part of the interventricular septum, while the pulmonary artery, was derived simultaneously from the two ventricles, straddling, as it were, the abnormal communication. Friedberg (1844) speaks of three babies belonging to the same family affected with congenital cyanosis. Orth (1880) cites the observation of two babies of the same father but of different mothers, who presented congenital malformation of the heart. Potocki (1886) was able to observe different members of two generations of the same family who presented the same cardiac malformation. De La Camp (1903) noted in two sisters and four brothers congenital malformations of the heart, identical in every respect. Saller (1905) cites the case of a family in which five babies of the first marriage were affected with congenital cyanosis, while the mother, having married the second time, brought forth normal children. Interesting also is the observation of Burwinkel: a man 54 years of age, cyanotic from birth, as were his mother and grandmother, who, having married, had three children, two of whom were cyanotic due to congenital heart disease. Hess and Pearce (1917) refer to three cases of congenital cyanosis in three babies of the same family. Debré (1891) writes of a mother and child, both of whom were affected with *maladie de Roger*. Appert and Cambessedes (1930) mention a mother and two children (of different marriages), all three of whom were affected with congenital cardiac malformation, and recently Robbioni calls attention to three brothers with congenital cyanosis."

The most recently published report is that of Ellis.³ Two sisters, aged 9 and 5 respectively, presented signs which are to be interpreted as patent ductus arteriosus. Both had loud systolic murmurs at the base with prominence of the pulmonary conus in the roentgenogram. Dr. Carter Smith⁴ reports two brothers, aged 4 and 6, with congenital deformity of the pulmonic valve, noncommunicating.

In both of the cases reported here the diagnosis was obvious because of the characteristic murmur which they exhibited, although neither presented the important confirmatory sign, prominence of the pulmonary conus in the roentgenogram. There is of course the possibility that one or more other malformations may accompany the patent ductus in both instances, but on the available evidence this cannot be certainly the case. It is probable that the degree of patency is comparable in the two and that the abnormal communication between the aorta and the pulmonary artery is relatively small. This is attested by the loudness of the murmur and the absence of any considerable dilatation of the pulmonary conus. The latter condition is due to the increased pressure in the pulmonary artery and, when it occurs, is the result of a relatively free or large communication between this vessel and the aorta.

1. Peacock, T. B.: *On Malformations of the Human Heart, with Original Cases*, ed. 1, London, John Churchill & Sons, 1858, ed. 2, 1866.

2. Tedesco, P. A.: *Su due casi di cardiopatia congenita familiare. Cuore e circolaz.* 17:76-93 (Feb.) 1933.

3. Ellis, R. W. B.: *Congenital Morbus Cordis in Two Sisters*, *Proc. Roy. Soc. Med.* 26:511-512 (March) 1933.

4. Smith, Carter: Personal communication to the author.

It is evident that the defect has caused neither of the patients any considerable disability. Although both are somewhat underweight, and this is probably incidental, their health has not been otherwise impaired. In this connection, witness the major operation which both underwent without complications. Contrary to the advice of their physicians, they have led practically normal lives since first the murmurs were discovered. They are probably fortunate in this respect in that they have thereby been spared lives of needless invalidism.

In view of the definite hazard of a superimposed subacute bacterial endocarditis on the existing lesion and of pulmonary tuberculosis, it is extremely important that the general health and resistance of these patients be built up and maintained at the highest possible point by the usual hygienic and dietary measures.

1103 Bell Building.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

HOGAN BREVATHERM SHORT WAVE DIATHERMY UNIT, CLINIC MODEL 8820 (TWO-TUBE) ACCEPTABLE

Manufacturer: McIntosh Electrical Corporation, Chicago.

This unit is recommended for medical and surgical diathermy. It is essentially the same as the Hogan Brevatherm Short Wave Diathermy Unit, Model 8800 (Two-Tube), the acceptance of which was recorded in *THE JOURNAL*, May 9, 1936, page 1660. The firm states that the difference between Model 8800 and Model 8820, the unit under consideration, is a change in the circuit as well as the wavelength, Model 8820 employing an ultra-audion circuit with a wavelength of 18 meters.

Model 8820 calls for the upper cabinet housing the mechanism and the standard accessories; the firm states that the model number is modified to 8821 when the mobile subcabinet is included.

The apparatus is mounted in a wooden cabinet and all working parts are mounted on a chassis, readily removable from the cabinet for inspection and repairs. The oscillator or tank coil is insulated from the wooden chassis by means of ceramic stand-off insulators. The circuit employed is a variation of the Colpitts group.

Inductance of the patient's circuit is inductively coupled to the oscillator or tank coil. Sufficiently loose coupling is employed to prevent overloading of the tubes.

Frequency of the current is about 16.6 megacycles per second, which corresponds to a wavelength of approximately 18 meters. Under maximum load, the power input is about 850 watts.

The firm was asked to submit evidence from a reliable investigator to substantiate the claims made for the unit. Using

human subjects, the heating effect of the tissues in the thigh was observed. Both cuff and cable electrodes were used. Nine men, ranging in age from 23 to 31 years, were obtained for the experiments. Temperature measurements were observed by hypodermic needle thermocouples, manufactured by the Leeds and Northrup Company, and the Portable Precision Potentiometer made by the same company. The skin temperatures were observed on two disk thermocouples made especially for the work. All these thermocouples were checked against a Bureau of Standards thermometer, reading to one-tenth degree Centigrade.

Hypodermic needle electrodes were inserted before turning on the current and immediately after shutting it off. In all tests the current was turned on for exactly twenty minutes. One needle was inserted from 1½ inches to 2 inches, depend-

ing on the thickness of the thigh; the other needle was inserted subcutaneously, just beneath the skin structure. The cable was wrapped around the thigh four and three-fourths times. First, however, two towels were wrapped around the thigh, and then an extra towel was folded and placed on the superior surface of the thigh, on which the cable rested. Cuff electrodes of size 2

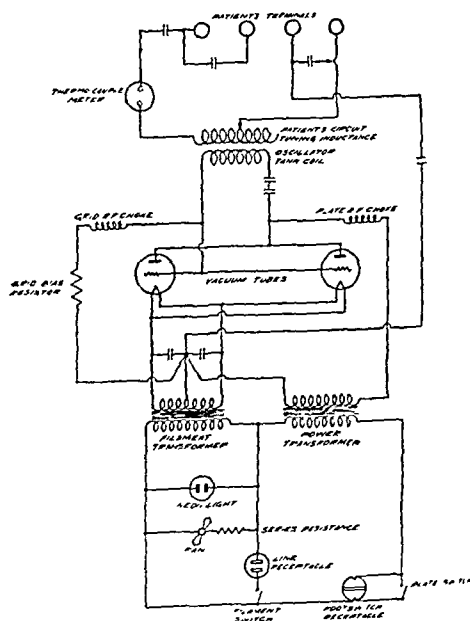
Averages of Nine Observations

	Skin Temperature Under Electrode		Deep Muscular Temperature		Oral Temperature	
	Initial	Final	Initial	Final	Initial	Final
(cuffs)	93.5	101.3	95.6	103.2	98.7	98.7
(cable)	87.5	95.2	98.6	105.9	98.9	99.1

inches wide, one-half inch thick and 24 inches long were wrapped around the thigh, one distal to the hip and the other proximal to the knee, with two towels next to the skin and a one-half inch flannel between the towels and the electrodes.

Results indicate that the temperature rise with the aforementioned method of application is considerably above what can be expected in the application of conventional diathermy—with a metal electrode on the medial aspect of the thigh and another metal electrode on the lateral aspect—the method of application that has been adopted as a minimum standard of acceptance.¹

Temperature rise of the plate power transformer and the filament transformer after the machine had been operated at



Schematic Diagram of Circuit.

full load for two hours came within the limits of safety prescribed by the Council. The shipping weight of the apparatus is about 77 pounds. Burns may be produced but may be avoided by ordinary precaution. Their likelihood to occur is less than with conventional diathermy, employing metal electrodes.

The machine was used in a clinic acceptable to the Council and was operated under actual clinical conditions. It was reported as giving satisfactory service.

In view of the favorable report based on the performance of this unit when employing cuff electrodes, the Council on Physical Therapy voted to include the Hogan Brevatherm Short Wave Diathermy Unit, Clinical Model 8820 (Two-Tube), in its list of accepted devices.

1. Mortimer, Bernard, and Osborne, S. L.: Tissue Heating by Short Wave Diathermy, *J. A. M. A.* 104:1413 (April 29) 1935.

HIGH TENSION DIATHERMY UNITS (MODELS 440 AND 480) ACCEPTABLE

Manufacturer: High Tension Corporation, New York.

These high tension diathermy units, designed for medical and surgical diathermy, are recommended for service in physicians' offices and in clinics.

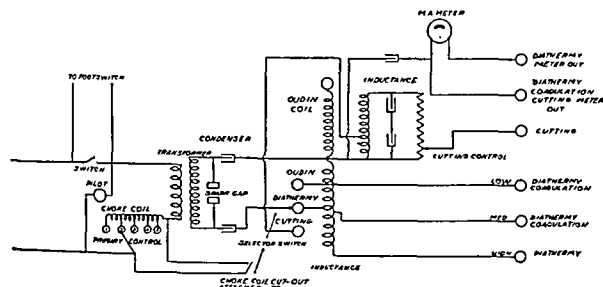
The electrical circuit was examined carefully and found to be efficient and reliable. The manufacturer submitted data containing a report of tests of the Model 480 for power input and output, and for its spark gap and transformer temperature rise. The results recorded in the data were in agreement with the observations conducted by an investigator for the Council and were in conformity with the standards for diathermy machines previously established. The input power required for these units is between 135 and 230 watts. Their frequency varies from 890 to 1,420 kilocycles per second, which corresponds to wavelengths between 211 and 37 meters.

The High Tension Diathermy Unit, Model 480, was tried out in a clinic acceptable to the Council. It was found to be satisfactory and met the requirements of the Council.

Model 440 is constructed essentially the same as Model 480 as far as electrical and mechanical characteristics are concerned, the difference being that Model 440 is designed for medical diathermy coagulation and desiccation, whereas Model 480 is also equipped with cutting current.



High Tension
Diathermy Unit,
Model 480.



Schematic diagram of circuit.

The Council therefore voted to include the High Tension Diathermy Units, Models 440 and 480, in its list of accepted apparatus.

CROSLY XERVAC—PRELIMINARY REPORT

Manufacturer: The Crosley Radio Corporation, Cincinnati.

According to the firm, the Crosley Xervac is an apparatus developed by Dr. Andrew A. Cueto for stimulating the growth of hair. The firm writes: "It [Xervac] is designed to stimulate and aid the growth of hair, and develop a healthy condition of hair and scalp by increasing the efficiency of the circulation of blood in the deep tissues of the scalp. This is accomplished by alternating positive and negative (vacuum) pressures which may be varied to suit the individual case."

The apparatus consists of a compressor and a vacuum pump, controls to regulate the pressures, and a helmet through which these pressures are applied to the scalp. It may be operated either by alternating or by direct current.

The theory, according to the firm, is that alternate vacuum and pressure of extremities of the body build up the deep network of blood vessels, thus supplying blood in sufficient quantities to desired points. This theory was claimed to be substantiated by a number of persons who have been treated in a clinic to indicate that development of the deep network of blood vessels in the scalp quite actively stimulates the growth of normal hair from hair follicles which heretofore had not been producing such hair.

Two of these units have been submitted to the Council on Physical Therapy for investigation along with an article which

was published in the *Journal-Lancet*, Minneapolis (56:571 [Nov.] 1936). In brief, the Council calls attention to the following points in connection with the Xervac:

1. Insufficient evidence has come to the attention of the Council to substantiate the alleged physiologic action.

2. The number of cases reported is insufficient on which to determine the usefulness of the device or to show what types of baldness, if any, respond favorably.

3. Insufficient evidence is presented to determine harmful effects, if any, connected with its use.

In view of the lack of critical evidence, physicians are advised for the present not to acquire the machine.

The Council therefore voted the Xervac inadmissible for inclusion in the list of accepted devices but will reconsider the apparatus without prejudice, if scientific evidence is submitted.

The Chemical Laboratory

THE FOLLOWING IS A REPORT OF THE CHEMICAL LABORATORY OF THE
AMERICAN MEDICAL ASSOCIATION.

P. N. LEECH, Director.

DENICOTEA

Two packages of Denicotea were submitted to the A. M. A. Chemical Laboratory for examination. One package contained one cigaret holder and ten cartridges. The cartridges were presumed to contain a silica gel to remove the nicotine and other ingredients in tobacco smoke. The label gave the following information:

"Smoke the healthy way.

Denicotea

assures you:

sound heart, sound lungs, sound
nerves, white teeth, unstained
fingers."

The second package contained ten cartridges. The label stated in French that the toxins of tobacco (nicotine, pyridine, ammonia and resinous acids) were removed from the smoke.

The cigaret holder was fashioned with a cavity in which a tube case could be inserted. The tube cases were colorless, brittle cylinders containing colorless, granular material. Qualitative tests showed the presence of silicic acid in the granular material.

After "smoking" four cigarets, the case and granular material had adsorbed a brown material with an odor of stale tobacco. This was partially soluble in water, ether, alcohol and chloroform. Qualitative tests indicated the presence of nicotine and traces of cyanides, pyridine and resinous material; ammonia was not found. Resinous material was found in the smoke after it had passed through the tube case.

For the determination of nicotine, average smoking conditions were reproduced as closely as possible. The smoke was "puffed" for ten seconds at intervals of ten seconds through the holder and passed through three wash waters. Eighteen puffs were taken and all but one inch of each cigaret was burned. The amount of nicotine in the water was determined by the method of Hofman (*Biochem. Ztschr.* 260:26, 1933). Two brands of cigarets were used.

Quantitative determinations yielded the following:

Nicotine per cigaret without filter (brand A).....	0.0017 Gm.
Nicotine per cigaret without filter (brand B).....	0.0020 Gm.
Nicotine passed by filter for average one of first four brand A cigaretts	0.00063 Gm. (40.1 per cent)
Nicotine passed by filter for average one of four brand A cigarets after six had been smoked.....	0.00082 Gm. (49 per cent)
Nicotine passed by filter for average one of first four brand B cigaretts	0.0011 Gm. (53 per cent)
Nicotine passed by filter for average one of four brand B cigaretts after four had been smoked.....	0.0014 Gm. (62 per cent)

From the foregoing figures it may be calculated that under ordinary conditions Denicotea removes approximately 60 cent of the nicotine from the smoke of brand A cigarets; new case is used and approximately 50 per cent after

cigarettes are smoked. It removes approximately 47 per cent from the smoke of brand B cigarettes when new and approximately 40 per cent after seven cigarettes have been smoked. It removes cyanides, pyridine and some of the resinous material from smoke. According to the experiments, the product is approximately 60 per cent efficient on the first smoke and its efficiency decreases, so that by the time twenty smokes are made through the same cartridge it would appear that there would be no appreciable denicotinizing effect at the end of the series.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.
PAUL NICHOLAS LEECH, Secretary.

STANDARDIZATION OF DIGITALIS PRODUCTS ACCEPTED FOR N. N. R.

The Council has given extensive consideration to the question whether all the digitalis and digitalis-like preparations listed in New and Nonofficial Remedies should be standardized by the official U. S. P. method, even though they are also assayed biologically by any other acceptable method.

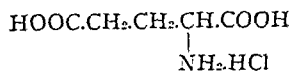
The various firms concerned were consulted and their replies were reported to the Council.

In the discussion based on these replies it was the consensus of the Council that, if two methods of assay do not give concordant results, more harm than good will be caused by creating the impression that a given preparation is standardized by both methods, for in the end its potency would be adjusted by one or the other and not by both. It is well known that many of the leading cardiologists and cardiac clinics employ the dosage recommended by Eggleston, which is based on the cat method of assay. No one, as far as it is known, has established an equally dependable therapeutic dosage based on frog units. In this connection it may be stated that digitalein and digitoxin are of approximately equal activity when assayed by the frog method, but digitoxin is ten times as active as digitalein when assayed by the cat method. Digitoxin is absorbed very well from the gastro-intestinal tract of man, digitalein is not.

The Council voted that manufacturers of digitalis and digitalis-like preparations be not required to change the method of standardizing such products as are now assayed by a satisfactory method.

GLUTAMIC ACID HYDROCHLORIDE-CALCO NOT ACCEPTABLE FOR N. N. R.

Glutamic Acid Hydrochloride-Calco was presented by the Calco Chemical Company for the Council's consideration as "a superior source of free hydrochloric acid for the treatment of Achlorhydria, Hypochlorhydria, Achylia Gastrica, Nervous Anorexia and Anemias (Requiring a High Protein Diet) and to Supplement or Replace Gastric HCl where such action is desirable." It is a solid substance which was presumed to yield hydrochloric acid when dissolved. A solid substance has an advantage in that it may be more easily transported by the patient. Glutamic acid hydrochloride has the formula:



The firm submitted a considerable amount of chemical data concerning the product but presented no references to the literature or other evidence of its clinical effectiveness as a conveyor of hydrochloric acid. The firm was informed that the Council was disposed to accept the product as a conveyor of hydrochloric acid, provided claims of superiority, as such, were not made; provided therapeutic claims for glutamic acid per se were not made; provided the product met the approval of the A. M. A. Chemical Laboratory, and provided no further conflicts arose.

The firm replied by sending advertising containing no claims for glutamic acid per se, nor any claims of superiority of the hydrochloride as a conveyor of hydrochloric acid, thus meeting two of the Council's objections.

The A. M. A. Chemical Laboratory found that the product complied with chemical tests and standards submitted by the firm. In view of the fact that the firm apparently based its opinion as to the usefulness of the product on laboratory assays, which did not include digestion experiments, the A. M. A. Chemical Laboratory was requested to undertake further examination, particularly with reference to the effectiveness of the compound as an acidifying agent in artificial digestion tests. The experiments were conducted in accordance with the U. S. P. X. Glutamic Acid alone was used in some experiments; in others, the solutions were adjusted to a hydrogen chloride content equal to 0.2 per cent hydrochloric acid, while in others the hydrogen ion concentration was rendered equivalent to that of 0.2 per cent hydrochloric acid (Glutamic Acid Hydrochloride contains three ionizable atoms—one due to the hydrogen chloride, and two to the glutamic acid). Controls were carried out with 0.3 per cent hydrochloric acid. Egg white was used as the substrate throughout. After many experiments the Laboratory came to the conclusion that glutamic acid hydrochloride inhibits peptic digestion in vitro.

The use of glutamic acid hydrochloride as a solid source of hydrogen chloride for peptic digestion is not new. More than ten years ago the Laboratory examined a brand of glutamic acid hydrochloride marketed by a well known pharmaceutical manufacturer under a trade name. The conclusions of the Laboratory were conveyed to that firm with the inquiry as to whether or not it had laboratory or clinical evidence for the value of its product. According to the firm's reply, its results confirm in general the observations of the A. M. A. Chemical Laboratory.

The Calco Chemical Company was informed that the Council felt itself unable to accept Glutamic Acid Hydrochloride for inclusion in New and Nonofficial Remedies unless more satisfactory evidence could be presented in favor of its usefulness. The Calco Chemical Company replied at length,¹ summarizing its contentions as follows:

1. The material has been shown to be definitely useful in stimulating gastric acid secretion and initiating normal gastric and duodenal function.

2. The material is a useful and convenient form of acid for substitution therapy.

3. The material does not inhibit gastric peptic secretion, although some diminution of peptic digestion does result, in vitro.

4. The material may be most effectively presented in an ethical manner by acceptance in New and Nonofficial Remedies.

The Council's referee, after careful study of the firm's reply, reported to the Council as follows:

"With respect to 1, the firm has not shown that glutamic acid hydrochloride stimulates gastric acid secretion or initiates normal gastric and duodenal function. The statement under 2 is only partly correct. Admittedly, glutamic acid hydrochloride would be a convenient form of substitution therapy provided it accomplished the purpose for which it is intended. That it is useful has not been demonstrated. With regard to 3, the firm has not shown that glutamic acid hydrochloride does not inhibit gastric peptic secretion, although the referee is willing to admit that the statement is probably correct. He agrees with the firm that peptic digestion in the presence of glutamic acid hydrochloride does not proceed as rapidly as in the presence of hydrochloric acid. Conclusion 4 requires no comment."

The firm stated that it intended to market the product whether accepted or unaccepted by Oct. 1, 1936. In view of the fact that the firm's reply furnished no conclusive evidence as to the usefulness of the product and that the investigations of the A. M. A. Chemical Laboratory cast considerable doubt on the therapeutic value claimed for it, the Council was obliged to declare it unacceptable for New and Nonofficial Remedies and to authorize publication of the foregoing report for the information of the medical profession.

1. Citing the work of Shay (Ann. Int. Med. 9:1628 [June] 1937) on the influence of glutamic acid hydrochloride on the titrable acidity of stomach contents.

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:

The following report of the Secretary is respectfully submitted:

MEMBERSHIP

The number of members enrolled on April 1, 1937, was 105,460. This enrolment is based on official reports received from the secretaries of constituent state and territorial medical associations and constitutes a new membership record. The number of enrolled members reported to the House of Delegates at the Kansas City session as of March 1, 1936, was 101,946.

It is quite probable that the number of members enrolled on the official membership list of the American Medical Association on April 1, 1937, is larger than the number of members actually enrolled on the same date on the official lists of the constituent state and territorial medical associations. In some states the names of members in arrears are dropped from the membership rolls on January 1, while in other states membership does not officially lapse on account of arrearages in payment of dues until some later date. Because of the interval between the time when names of members are actually removed from or added to the state association rolls and the time when notification of such changes reaches the office of the Secretary it is not possible to maintain exact uniformity in membership records. However, experience shows that in most instances the names of members temporarily suspended for nonpayment of dues are soon restored to official membership lists.

FELLOWSHIP

The number of Fellows of the Association, as shown by the official roster on April 1, 1937, was 66,296, as compared with 62,997 reported to the House of Delegates at the Kansas City session as of March 1, 1936.

As a part of this report, a table is presented which indicates the number of counties in each state and territory, the number of component societies as shown by the records in the Secretary's office, the number of members enrolled in the constituent associations at the time the count was made for the purposes of this table, and the number of Fellows, including Honorary Fellows and commissioned officers of government medical services.

REAPPORTIONMENT OF DELEGATES

Under the provisions of section 3, chapter I, of the By-Laws, it is required that a reapportionment of delegates shall be made every third year. The last reapportionment was made at the Cleveland session in 1934 for the years 1935, 1936 and 1937, and it will therefore be necessary to make a reapportionment at this annual session for the years 1938, 1939 and 1940.

AMERICAN MEDICAL ASSOCIATION BULLETIN

Publication of the AMERICAN MEDICAL ASSOCIATION BULLETIN has been discontinued by order of the Board of Trustees, and a special section known as the Organization Section of THE JOURNAL has been substituted. For a number of years the BULLETIN was issued as a monthly periodical during nine months of each year but did not serve as a satisfactory medium for the timely publication of important information pertaining to organization and medical economics. The circulation of the BULLETIN was limited almost entirely to Fellows of the Asso-

ciation, whereas THE JOURNAL reaches directly a much greater number of physicians than is included in the Fellowship of the Association and, as a weekly publication, provides facilities for more timely presentation of matters of general interest.

Organization of Constituent State Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations					
			Number of Counties Not Organized		No. of Physicians in State, A. M. A. Directory	Number of Members of State Associations		Number of Fellows in State
			1936	1937		1936	1937	
Alabama.....	67	67	0	0	2,105	1,457	1,472	531
Arizona.....	14	12	1	1	520	277	316	227
Arkansas.....	15	63	9	9	1,911	1,069	1,051	415
California.....	58	39	10	10	10,859	5,382	5,695	5,744
Colorado.....	63	28	0	0	1,933	1,132	1,139	743
Connecticut.....	8	8	0	0	2,401	1,569	1,543	1,015
Delaware.....	3	3	0	0	316	200	198	120
Dist. of Columbia	..	..	..	..	1,979	737	783	603
Florida.....	67	32	21	23	1,939	1,051	1,178	639
Georgia.....	161	95	46	48	2,765	1,689	1,807	676
Idaho.....	44	9	0	0	410	234	257	149
Illinois.....	102	93	7	6	11,672	7,085	7,287	4,656
Indiana.....	92	83	2	1	4,055	2,834	2,938	1,665
Iowa.....	109	97	0	0	3,146	2,295	2,416	1,421
Kansas.....	105	67	28	21	2,188	1,417	1,529	1,098
Kentucky.....	120	114	3	4	2,770	1,768	1,712	770
Louisiana.....	64	39	18	19	2,135	1,256	1,328	724
Maine.....	16	15	1	1	966	698	700	401
Maryland.....	23	22	1	1	2,730	1,398	1,370	858
Massachusetts.....	14	18	0	0	7,263	4,827	4,962	3,090
Michigan.....	83	54	1	0	5,863	3,661	3,742	1,665
Minnesota.....	87	33	1	2	3,233	2,202	2,347	1,513
Mississippi.....	82	24	1	1	1,615	1,200	995	310
Missouri.....	114	62	9	12	5,496	3,145	3,201	2,030
Montana.....	56	15	26	26	483	340	339	218
Nebraska.....	93	49	20	20	1,781	1,093	1,069	732
Nevada.....	17	5	12	12	140	104	101	63
New Hampshire.....	10	10	0	0	593	400	455	279
New Jersey.....	21	21	0	0	5,177	3,036	3,193	2,263
New Mexico.....	31	12	19	19	401	209	236	155
New York.....	62	61	1	1	24,013	14,375	15,047	9,867
North Carolina.....	100	84	3	2	2,570	1,557	1,591	781
North Dakota.....	53	13	10	10	526	335	387	266
Ohio.....	83	86	0	2	8,907	5,334	5,361	3,888
Oklahoma.....	77	65	7	7	2,330	1,494	1,524	824
Oregon.....	36	23	3	3	1,344	742	755	460
Pennsylvania.....	67	60	6	6	12,880	8,415	8,588	5,721
Rhode Island.....	5	6	1	1	924	501	483	364
South Carolina.....	46	39	0	0	1,335	791	874	364
South Dakota.....	69	12	11	3	562	332	322	190
Tennessee.....	95	58	26	26	2,939	1,688	1,669	786
Texas.....	254	135	14	12	6,729	4,024	4,169	2,046
Utah.....	29	9	3	4	543	398	416	248
Vermont.....	14	10	3	3	503	374	376	207
Virginia.....	100	47	10	9	2,734	1,732	1,725	956
Washington.....	39	24	14	13	2,049	1,267	1,298	824
West Virginia.....	55	29	5	5	1,792	1,223	1,194	643
Wisconsin.....	71	52	1	0	3,387	2,215	2,349	1,544
Wyoming.....	24	13	10	10	261	141	143	101
Alaska.....	..	..	..	..	..	..	..	..
Hawaii.....	5	4	1	1	378	262	257	124
Isthmian Canal Zone.....	..	..	..	..	187	109	95	18
Philippine Islands (provinces).....	56	11	44	45	2,783	446	969	41
Puerto Rico (districts).....	7	7	0	0	415	326	347	75
Foreign.....	..	..	..	..	23	..	..	191
Total.....	3,141	2,057	411	399	160,007	101,916	105,460	67,625
Commissioned medical officers.....	..	..	..	..	..	..	..	2,661
								66,296

ANNUAL CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

The Annual Conference of Secretaries of Constituent State Medical Associations convened in Chicago in November 1936. All meetings were held in the new Assembly Hall in the Association's building. Nearly all the secretaries of the state

associations attended the conference, and with very few exceptions the editors of the official state medical journals were present. In addition there were in attendance a number of officers and members of official bodies of state associations and county societies, as well as the members of the Board of Trustees and of the administrative personnel of the American Medical Association.

This annual conference offers an opportunity for the executive officers of state medical associations and the editors of state medical journals to consider together problems of common interest, to secure information concerning methods and procedures that are used most effectively in organizational matters in the several states, and to familiarize themselves with the facilities of the American Medical Association that can be used for the benefit of the component and constituent units of the organized profession in the United States. The conference also provides opportunity for the members of official bodies and of the administrative personnel of the American Medical Association to secure first hand information concerning the problems with which state and county medical societies are immediately concerned and to obtain the benefit of suggestions and criticisms that may be useful in planning for the extension and helpfulness of the service of the national organization.

OFFICIAL CONTACTS

The number of visits made by members of the official and administrative personnel of the Association to meetings of medical societies in all parts of the country was considerably larger in 1936 than in any previous year. The elected officers, members of various councils and of other official bodies, and members of the administrative personnel of the Association have served as representatives of the Association at meetings or official conferences held in practically every state in the Union. The demand for field service of this nature is constantly increasing and at times has been almost overwhelming.

The number of invitations extended to official representatives of the Association to appear before important lay groups in various states is growing each year. As far as it has been possible, invitations received from medical societies and from influential lay organizations have been accepted, and a very earnest effort has been made to render the best service possible in the interest of better organization in the states and in furthering educational programs of component and constituent societies.

RESOLUTIONS TO BE SUBMITTED TO THE HOUSE OF DELEGATES

The following resolutions have been forwarded to the Secretary by Dr. Burt R. Shurly, delegate from the Section on Ophthalmology, for inclusion in the Secretary's report, in accordance with official action taken by the House of Delegates several years ago:

WHEREAS, The family physician has labored for these many years without full recognition of his valuable services; and

WHEREAS, The various school systems of the United States depend on the family doctor for the prevention and diagnosis of disease and the protection of the public; therefore be it

Resolved, That the school boards and authorities in charge of the school systems all over our country be respectfully requested to enter and file on the index card of every school child the name and address of the chosen family doctor; and be it further

Resolved, That the designated family doctor, together with the parents or guardians of the child or in their absence, be informed of any emergency that may befall the child in the schools of this country.

The office of the Secretary has continued to receive most helpful assistance from the secretaries and other officers of state, territorial and county medical societies, from the members of the various official bodies of the American Medical Association, including the House of Delegates, and from a large number of individual physicians in all parts of the country, for which sincere and grateful acknowledgment is hereby offered.

Respectfully submitted.

OLIN WEST, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

On June 20, 1936, Dr. James Tate Mason, who became President of the American Medical Association on May 12, 1936, died at his home in Seattle. That Dr. Mason had won a high place in the respect, esteem and affection of the members of the American Medical Association was clearly shown by the beautiful tribute that was paid to him by the House of Delegates when he was declared President of the American Medical Association, even though absent from the annual session at which he was to be formally installed into that office. Through Dr. Mason's death, the Association was deprived of the benefit of the willing and efficient service which he was prepared to render as its chief officer.

The Board of Trustees is glad to report to the House of Delegates that a properly designed scroll certifying to the action of the House of Delegates whereby Dr. Mason was proclaimed President of the American Medical Association was delivered to him in person before his death. A properly engraved gold medal, a copy of which is presented each year to the retiring President, could not be prepared in time for presentation to Dr. Mason himself but was forwarded to Mrs. Mason.

At the regular official meeting of the Board of Trustees held in Chicago on September 24, 1936, Dr. Charles Gordon Heyd of New York, elected Vice President of the Association by the House of Delegates at Kansas City, was declared President to serve in that capacity until the next annual session. The splendid and devoted service which Dr. Heyd has rendered in carrying out the duties of President of the American Medical Association has thoroughly justified this action, and the Board of Trustees desires to express its grateful appreciation of the wise counsel and the able assistance that Doctor Heyd has given to the Board in its consideration of matters demanding official attention.

Business Operations

For the twelfth consecutive year, the Board of Trustees is reporting to the House of Delegates an increase in the activities of the various councils, bureaus and departments of the Association. A marked increase in the number of members, a greater interest in organizational affairs on the part of physicians and a more widespread and more intelligent interest in medicine and in the public health on the part of the lay public are some of the factors that have produced a much greater demand for services of the kind which, in all probability, no other agency than the American Medical Association can provide. Changing social conditions and changes in the attitude of government toward medical and public health affairs, a constantly advancing knowledge of the scientific aspects of medicine and new problems growing out of important social changes affecting most of the relations of medicine have all contributed to the volume of inquiries, requests for information and appeals for aid of one or another kind that have at times greatly taxed the facilities of the Association.

The number of employees of the Association at the time of the preparation of this report was 565.

As will be seen from the Auditor's Report, which, with the Treasurer's Report, is submitted herewith, the gross earnings for the year ended Dec. 31, 1936, amounted to \$1,547,218.23, as compared with \$1,493,472.19 in the preceding year. Miscellaneous income, including income from investments, amounted to \$95,722.86. Operating expenses for the year were \$909,417.95, while Association expenses, including those incident to the operation of councils and bureaus, amounted to \$411,028.93, and miscellaneous expenses were \$209,382.37. The net income for the year was \$113,111.84, of which amount \$80,844.60 represented income from investments. Because of prevailing low interest rates, income from investments was less than in 1935.

Amounts expended for wages and salaries, for paper, for postage and for miscellaneous operating expenses were considerably larger than in previous years, and there were small increases in expenditures on other specific accounts. Decreased expenditures were recorded with respect to some items, but in practically all instances such decreases were small.

Expenditures for legal services and investigations were very considerably larger in 1936 than in 1935 because of suits brought

against the Association, all of which with one exception, have been withdrawn or have been dismissed by courts.

It is now apparent that operating costs will be considerably larger in 1937 than in 1936, because of higher costs of paper and other commodities.

The purchase of new machinery and equipment during the current year probably will require expenditures of from \$50,000 to \$70,000, of which approximately \$33,000 will be required for the purchase of a new gathering machine to replace out-worn equipment.

Summary

Gross earnings and miscellaneous income were larger in 1936 than in 1935. Expenditures for wages and salaries and for paper were notably larger than in the preceding year. Income from investments was smaller by approximately \$3,000 than in 1935. Net income for 1936 was \$113,111.84, of which sum \$80,844.60 was income received from investments.

Building and Equipment

During the year radical changes were made in the building of the Association located at 535 North Dearborn Street in Chicago. Two entirely new stories were added to the building, and an Assembly Hall and a large committee room were constructed above the eighth floor. Important alterations were made on all other floors. A full, detailed description of the building has appeared in the columns of THE JOURNAL. As a result of the enlargement and improvements, it has been possible to place the Editorial Department and the Library on one floor and to bring together other departments the activities of which are closely related. It has also been made possible to provide much needed room and better facilities for practically all departments, and there is now available space that can be used when further expansion may be necessary.

The new Assembly Hall is large enough to be used for meetings of the House of Delegates, for the Annual Conference of Secretaries of Constituent State Medical Associations and for the accommodation of other meetings as occasion demands. Congestion in the mechanical departments has been greatly relieved, and better working quarters and facilities have been provided. The brick walls on the Dearborn Street and Grand Avenue sides of the building have been replaced by entirely new walls of granite and Indiana limestone. The building now appears as a beautiful structure of which the Association can be justly proud. All building costs have been fully paid in accordance with the terms of contracts, and necessary adjustments in the building fund have been made, as shown in the financial reports that are appended herewith.

During the year it has been found necessary to make important additions to equipment in the printing department, including the purchase of two new linotype machines and additional presses. In the immediate future other new machinery must be secured, and the necessary appropriations for this purpose have been made by the Board of Trustees.

The Journal of the American Medical Association

During the year 1936 THE JOURNAL has maintained its repute as a leader in the general medical field.

Through cooperation with the United States Pharmacopeial Convention, THE JOURNAL has been publishing a series of articles on "The Pharmacopeia and the Physician," which have attracted wide attention and which have been of great service in encouraging prescribing of U. S. P. and N. N. R. products by the medical profession.

The special articles dealing with "The Therapy of the Cook County Hospital" have also been continued and will eventually be published in book form.

THE JOURNAL has cooperated with the United States Public Health Service in the publishing of a series of articles dealing with the diagnosis and treatment of venereal diseases.

Foreign correspondence has been extended by the development of correspondents in some countries not previously covered and by the inclusion of new material dealing particularly with the economic and social relations of medical practice in foreign countries.

THE JOURNAL has continued its earnest battle on behalf of high standards in the field of medical education and medical practice. Special issues have been devoted to graduate education, tuberculosis, general medical education, the work of the hospitals, roentgenology and clinical pathology.

The Editorial Department of THE JOURNAL has been still further developed by a shifting of emphasis somewhat from the purely laboratory and technical advances to material dealing especially with economics, general medical practice and the social aspects of medical work.

Attention is called to the further development of the department of questions and answers. This has now assumed such

TABLE 1.—Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Dec. 31, 1936;
Also Gain or Loss in Each State

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama.....	490	245	735	27	..
Arizona.....	209	120	329	22	..
Arkansas.....	364	191	555	60	..
California.....	3,446	2,481	5,927	331	..
Colorado.....	632	297	949	73	..
Connecticut.....	961	566	1,527	25	..
Delaware.....	116	80	196	10	..
District of Columbia.....	575	536	1,111	33	..
Florida.....	635	344	979	59	..
Georgia.....	612	402	1,014	90	..
Idaho.....	138	110	248	10	..
Illinois.....	4,327	2,628	6,955	61	..
Indiana.....	1,534	590	2,124	91	..
Iowa.....	1,243	388	1,631	39	..
Kansas.....	975	261	1,236	162	..
Kentucky.....	691	329	1,020	13	..
Louisiana.....	634	279	913	20	..
Maine.....	373	136	509	8	..
Maryland.....	799	646	1,445	97	..
Massachusetts.....	2,823	1,433	4,256	166	..
Michigan.....	2,111	1,233	3,344	143	..
Minnesota.....	1,330	575	1,905	69	..
Mississippi.....	278	110	388	7	..
Missouri.....	1,837	778	2,615	165	..
Montana.....	186	98	284	9	..
Nebraska.....	661	291	952	32	..
Nevada.....	54	36	90	..	1
New Hampshire.....	231	87	338	3	..
New Jersey.....	2,135	1,426	3,561	87	..
New Mexico.....	141	92	233	14	..
New York.....	9,027	5,549	14,576	467	..
North Carolina.....	709	463	1,172	52	..
North Dakota.....	218	69	287	..	5
Ohio.....	3,313	1,531	4,844	90	..
Oklahoma.....	713	271	984	74	..
Oregon.....	415	274	689	25	..
Pennsylvania.....	5,443	2,316	7,759	90	..
Rhode Island.....	341	192	533	..	4
South Carolina.....	314	210	523	29	..
South Dakota.....	173	112	285	..	16
Tennessee.....	689	416	1,105	56	..
Texas.....	1,758	797	2,555	56	..
Utah.....	212	101	313	19	..
Vermont.....	187	89	275	..	18
Virginia.....	871	411	1,282	61	..
Washington.....	738	333	1,071	31	..
West Virginia.....	574	237	811	18	..
Wisconsin.....	1,368	600	1,968	15	..
Wyoming.....	93	69	163	20	..
U. S. Army.....	..	173	173	3	..
U. S. Navy.....	..	232	232	15	..
Alaska.....	15	20	35	9	..
Canada.....	13	793	806	63	..
Cuba.....	3	78	81	10	..
Hawaii.....	106	63	169	7	..
Mexico.....	9	93	102	16	..
Panama.....	17	31	48	9	..
Philippine Islands.....	40	174	214	26	..
Puerto Rico.....	66	39	105	..	..
Virgin Islands.....	..	5	5	..	2
Foreign.....	117	2,559	2,676	230	..
Advertisers, agents.....	..	..	501	72	..
Exchanges.....	..	..	310	5	..
Complimentaries.....	..	..	99	1	..
Total on mailing list....			94,180	3,315	46

proportions that from thirty to fifty letters are received each day from physicians throughout the world, who present not only problems arising in their practice but in many instances problems affecting their own health. It even has been suggested that this extensive department might warrant the publication either of a book devoted to questions and answers or of a special periodical including only such material.

In a survey of medical periodicals published in the *Bulletin of the Medical Library Association* it was indicated that THE JOURNAL leads all other publications in the world in the number of times that it is referred to in various medical writings.

Tables 1 and 2 indicate the approximate count of Fellows and subscribers carried on the mailing list of THE JOURNAL.

and the number of physicians receiving THE JOURNAL in each state.

The average number of copies of THE JOURNAL printed weekly during the year 1936 was 93,301, while the total number of copies printed during the year was 4,851,677. The net paid circulation on Dec. 31, 1936, was 93,270, an increase of 3,391 over the net paid circulation on a similar date in the previous year.

Summary

The Journal of the American Medical Association has continued to hold the place which it has long occupied as the leading publication of its kind.

New features have been developed during the past year. Special articles dealing with subjects of important interest to the entire profession, some of which have been prepared with the cooperation of other lead-

TABLE 2.—Physicians Receiving the Journal*

State	Number Receiving Journal	Physicians in State; A.M.A. Directory	Approximate Percentage Receiving Journal
Alabama.....	735	2,105	35
Arizona.....	320	520	63
Arkansas.....	555	1,911	29
California.....	5,927	10,839	55
Colorado.....	949	1,933	49
Connecticut.....	1,727	2,401	64
Delaware.....	196	316	62
District of Columbia.....	1,111	1,979	56
Florida.....	979	1,939	51
Georgia.....	1,014	2,765	37
Idaho.....	248	410	61
Illinois.....	6,955	11,672	60
Indiana.....	2,124	4,025	53
Iowa.....	1,631	3,146	52
Kansas.....	1,236	2,188	57
Kentucky.....	1,020	2,770	37
Louisiana.....	913	2,135	43
Maine.....	509	966	53
Maryland.....	1,445	2,730	53
Massachusetts.....	4,256	7,263	59
Michigan.....	3,244	5,565	57
Minnesota.....	1,905	3,283	58
Mississippi.....	388	1,515	25
Missouri.....	2,615	5,496	48
Montana.....	284	483	59
Nebraska.....	952	1,781	54
Nevada.....	90	149	61
New Hampshire.....	338	593	57
New Jersey.....	3,761	5,177	69
New Mexico.....	233	401	58
New York.....	14,776	24,013	61
North Carolina.....	1,172	2,370	46
North Dakota.....	287	326	88
Ohio.....	4,864	8,907	55
Oklahoma.....	984	2,350	41
Oregon.....	689	1,344	51
Pennsylvania.....	7,759	12,889	60
Rhode Island.....	533	924	58
South Carolina.....	533	1,335	40
South Dakota.....	285	562	51
Tennessee.....	1,105	2,639	42
Texas.....	2,555	6,729	38
Utah.....	313	543	58
Vermont.....	275	503	55
Virginia.....	1,282	2,734	47
Washington.....	1,091	2,040	53
West Virginia.....	831	1,792	46
Wisconsin.....	1,908	3,587	53
Wyoming.....	153	261	59

* This table gives the number of physicians (based on the Fourteenth Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army and Navy are not included.

ing organizations, have been published. The amount of space devoted to foreign correspondence has been increased, and information concerning scientific, social and economic conditions in other countries has been presented.

In the editorial columns more attention has been given to economic and social aspects of medicine, but the quality of editorial material dealing with scientific matters has been maintained in accordance with high standards previously established.

The department devoted to questions and answers has assumed such proportions that from thirty to fifty letters are received each day from physicians in all parts of the world.

In a survey of medical periodicals published in the Bulletin of the Medical Library Association, it was shown that The Journal leads the medical publications of the world in the number of times it is referred to in medical literature.

Special Journals

The special periodicals issued by the American Medical Association have continued to serve as a source of stimulation and inspiration to the physicians interested in the specialties to which they are devoted.

During the year Dr. William Allen Pusey has retired as Editor of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY and has been elected by the Board of Trustees as Editor Emeritus of that publication. Under his leadership the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY soon assumed and has since maintained a commanding position in the dermatologic periodical literature of the world. A special issue of the publication has been devoted to honoring him.

The ARCHIVES OF NEUROLOGY AND PSYCHIATRY dedicated the final issue for 1936 to Dr. Hugh T. Patrick, for many years Editor of that publication and instrumental in stimulating its establishment by the American Medical Association.

The AMERICAN JOURNAL OF DISEASES OF CHILDREN has rendered a special service by undertaking to publish monographic material which because of its cost and scope could not be published in any other manner.

Particularly important in the ARCHIVES OF INTERNAL MEDICINE are the monthly reviews and surveys of the status of various aspects of practice in internal medicine. Under the leadership of the editorial board of the ARCHIVES, these have developed such quality and importance that there are repeated demands for their republication in book form.

The other special periodicals have continued to maintain the high standards set in previous years.

All of the Association's periodicals in this group showed an increase in circulation for the year, the largest gains having been made by the ARCHIVES OF INTERNAL MEDICINE and the ARCHIVES OF OPHTHALMOLOGY. The total circulation of the special journals of the Association is not as large as is merited by the high quality of the material presented.

The loss incurred in the publication of the special journals for the year 1936 was \$33,821.30. Only two of the publications, the ARCHIVES OF OTOLARYNGOLOGY and the ARCHIVES OF OPHTHALMOLOGY, produced incomes in excess of the costs of publication.

As reported to the House of Delegates at the 1936 annual session of the Association, requests have been received by the Board of Trustees for the publication of additional periodicals in special fields. While it is believed that the special journals now published constitute a distinct contribution to scientific medical literature, and while these periodicals are not published with the view of financial gain, it is nevertheless true that the Association hardly can afford to extend its efforts in this direction unless proper support is given by the profession whereby continued deficits of comparatively large amounts can be prevented. Some of the special journals are now encountering competition, which did not previously exist, because periodicals devoted to special fields are being published by commercial concerns who do not maintain advertising standards comparable to those established and maintained by the periodicals of the American Medical Association.

As stated in the last annual report submitted by the Board of Trustees, some of the periodicals that have lately been established have been made the official organs of special organizations and apparently are receiving even greater support from physicians engaged in the practice of specialties than are the special publications of the American Medical Association. The Board of Trustees desires to continue the publication of this group of journals but feels very strongly that the special journals are worthy of whole hearted support by members of the specialties which they are designed to serve. Failing to receive such support, in the event that deficits continue to increase, it may become necessary to consider seriously the advisability of suspending publication of those special journals which are responsible for the largest part of the losses incurred.

Summary

The circulation of all the special journals was larger in 1936 than in the previous year, but the total circulation is not as large as is merited. Only two of the special journals produced incomes in excess of publication costs. The total loss sustained in 1936 was \$33,821.30. If deficits occasioned by the publication of this group of journals continue to increase, it may be necessary to consider suspension of publication of those responsible for the largest losses.

Hygeia

HYGEIA has maintained a steady increase in its circulation so that it has now reached the highest circulation in its history. Moreover, it is increasingly used as a source book for medical and health material by many other publications. Practically all of the popular periodicals which digest important material from other sources frequently present abstracts from HYGEIA. Magazines devoted to health in India, England, Germany, Russia, Canada and Australia have been quoting material taken directly from the pages of this publication. It is also used as a reference work in public schools in this and in some other countries.

In the publication of HYGEIA, the American Medical Association is rendering a service which could not, it may be said with assurance, be equaled by any other medical agency.

The net paid circulation for HYGEIA in December 1936 was in excess of 101,000, which represents an increase of approximately 15,000 over the circulation of the previous year. Approximately 16,000 physicians were subscribers in 1936. Woman's auxiliaries of various state medical associations secured a total of 5,541 subscriptions during the year. The aid thus given by the state auxiliaries is greatly appreciated by the Board of Trustees.

The advertising income from HYGEIA for the year 1936 was less than that of the previous year by approximately \$12,000. The total income received was less than the cost of publication by the sum of \$14,791.38, as compared with a loss of \$31,311.29 in 1935.

Summary

The paid circulation of Hygeia at the end of the year 1936 was more than 101,000, an increase of about 15,000 over the previous year. Much of the material that has appeared in this magazine has been reproduced in abstract form in popular periodicals, and many public schools have continued the use of Hygeia as a reference work. Publication costs exceeded income by the sum of \$14,791.38.

The Library

The demands for library service have increased steadily since 1920. The year 1936 has proved to be the year of greatest activity. During this year the Library has been provided with new and larger quarters and is far better equipped to meet the increased demands. The additional space has enabled rearrangement and correlation of various activities. The staff of the QUARTERLY CUMULATIVE INDEX MEDICUS now has adequate space for the immense amount of work involved in the preparation of this book. Ample stack room has been provided for a ten year collection of approximately 1,400 periodicals. The work of the entire Library staff has been greatly facilitated by assignment to the Library of such well planned and spacious quarters.

During the year, 10,852 periodicals were lent to physicians on individual requests. Thirty-five colleges and universities called on the Association for 937 periodicals which were not available in their various individual libraries.

The package library service, while not showing a great increase in the number of package libraries lent, nevertheless experienced one of its busiest years. There were 3,263 package libraries sent out in 1936. However, this figure does not include the folders on special subjects, which are being called for constantly for study in the Library and of which no record is kept. Approximately 100 visitors a month use the library facilities. The majority of package library requests were

received from the states in which are to be found the greatest number of medical libraries; namely, Illinois 385, New York 250, Ohio 196 and Pennsylvania 190.

The Library answered some 6,000 bibliographic and general reference questions. As usual, the indexes to THE JOURNAL were prepared in the Library.

The preparation of the QUARTERLY CUMULATIVE INDEX MEDICUS continued to constitute one of the major tasks of the Library. Twenty-three new periodicals were added to the number regularly indexed and approximately fifty additional periodicals were consulted, from the contents of which occasional articles were indexed. The loss for 1936 was \$3,643.57 less than for 1935.

During the year the Employees' Library showed a circulation of 5,400 books, with an average daily circulation of twenty-two.

Summary

New and enlarged quarters were provided for the Library in 1936, permitting rearrangement and correlation of the various activities and making it possible to meet more fully constantly increasing demands. Approximately 1,400 periodicals are now being received. During the year, 10,852 copies of periodicals were lent to physicians on individual requests. Library packages were distributed to the number of 3,263 in addition to a comparatively large number of folders on special subjects provided for the use of those who come to the Library for the purpose of study. Approximately 100 visitors a month use the Library facilities. About 6,000 inquiries of a bibliographic and general reference nature were answered.

The preparation of material for the Quarterly Cumulative Index Medicus constitutes one of the major tasks of the Library. Twenty-three new periodicals were added to the list of those regularly indexed, and occasional articles were indexed from approximately fifty additional periodicals. The costs of publication over income received from sales of the Index was less in 1936 than in the previous year by the sum of \$3,643.57.

The total circulation of books in the Employees' Library was 5,400, with an average daily circulation of twenty-two.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau represents thirty-three of the official publications of constituent state medical associations. Commissions earned in 1936 amounted to \$30,598.63, as compared with \$26,224.26 in 1935. From the commissions earned, the sum of \$13,000 was remitted to the state medical journals represented by the Bureau, these remittances having been made in proportion to the total amount of advertising secured for each of the journals. Advertising contracts secured through the Cooperative Medical Advertising Bureau for the state medical journals concerned amounted to \$152,995.29, which represents a gratifying increase over the amount involved in contracts secured during the previous year.

The *Connecticut State Medical Journal*, the official organ of the Connecticut State Medical Society, was established in 1936 and is one of the participating journals of the Bureau.

Summary

Thirty-three of thirty-five journals of constituent state medical associations are represented in the Cooperative Medical Advertising Bureau. The total amount of advertising secured in 1936 was \$152,995.29. Commissions earned by the Bureau amounted to \$30,598.63, of which the sum of \$13,000 was remitted to the state medical journals represented by the Bureau in proportion to the total amount of advertising secured for each. The *Connecticut State Medical Journal* was added to the list of journals represented by the Bureau in 1936.

Mailing and Order Department

The total number of orders handled by the Order Department in 1936 was 69,819, with 343,977 units distributed. The Mailing Department handled 418,174 pieces of outgoing first

class mail, while 1,046,336 pieces of outgoing third class mail passed through this department.

A careful study has been made concerning the costs of shipping, and as a result shipping expenses have been somewhat reduced by resorting to the use of express facilities when the cost involved is less than that involved in shipping by mail.

Division of Foods, Drugs and Physical Therapy

In order that the work of the Council on Pharmacy and Chemistry, the Council on Physical Therapy and the Council on Foods might be better correlated and closer cooperation established in dealing with questions of common interest, completion of the plan for the creation of a Division of Foods, Drugs and Physical Therapy was carried out during the year.

This matter was brought to the attention of the House of Delegates at the Kansas City session. A committee on policy, rules and procedure, representing the three groups, has been established, and it is believed that the efficiency of the work of these councils will be greatly enhanced.

Council on Pharmacy and Chemistry

The work of the Council on Pharmacy and Chemistry was interfered with to some extent during a part of the year because of building operations, which, after completion, provided more ample space than was formerly available and thereby made possible the installation of much needed equipment and enlarged facilities.

SUBMISSION OF PRODUCTS AND COOPERATION OF MANUFACTURERS

There has been an almost constant increase in the number of products submitted to the Council for official consideration. It is gratifying to report that more and more important producers of pharmaceuticals are offering cooperation. Requests from manufacturers seeking opinion and advice concerning developments in drug therapy are being received much more frequently than before, and there is a very decided increase in the number of inquiries coming from physicians and official representatives of various organizations. It is encouraging to note that an appreciable number of manufacturers of drug products are revising catalogues to eliminate unessential and useless drugs and, in some instances, are discarding the use of therapeutically suggestive proprietary names which encourage self medication.

Another encouraging trend has been noted by the Council in that a number of pharmaceutical producers are now employing well qualified, scientific personnel in strengthening their laboratory and research facilities. The qualified opinion, advice and experience of the chemist, the bacteriologist and the physician are now being used to a far greater extent than ever before in connection with the production of therapeutic agents.

NOMENCLATURE

Some of the most difficult problems with which the Council has been confronted during its entire existence have been those concerned with nomenclature. During the past year the Council has been called on to give aid in devising nonproprietary names for new products, and the effort that has been made to be helpful in this connection evidently has been appreciated by the manufacturers.

Difficulties are rather frequently encountered in connection with the selection of names for newly discovered therapeutic agents. In some instances those who have developed entirely new compounds or products have coined names carrying distinct therapeutic implications, and this is not in accord with the basic rules of the Council. It is, of course, essential that the Council be consistent in its rulings with respect to nomenclature, and the acceptance of a therapeutically suggestive name would serve as a precedent that might easily create rather serious embarrassment later on. It is to be hoped that the time will come when investigators who have discovered new products will select names in compliance with the fundamentally sound rulings of the Council, opposed to therapeutically suggestive names. As an instance of the complications that sometimes arise in this connection, four different investigators, working independently within the last year, thought they had discovered

four new and different alkaloids of one drug. Later they all agreed that the four products were identical, but each had selected a name of his own. Because of this situation, the Council was compelled to coin a new and different name. Naturally, more than one of the investigators felt that the name he selected should have been accepted by the Council.

Rather chaotic conditions have existed with respect to the nomenclature of endocrine principles. In an effort to remedy this situation, the Council sought the aid of a group of consultants, each of whom has made important contributions to the knowledge of glandular physiology. This group constituted a committee known as the Advisory Committee on the Nomenclature of Endocrine Principles and included Drs. Edgar Allen, Willard M. Allen, J. B. Collip, G. W. Corner, E. A. Doisy, E. T. Engle, H. M. Evans, R. T. Frank, F. L. Hisaw, F. C. Koch, Leo Loeb, G. F. Marrian, C. R. Moore, Oscar Riddle, P. E. Smith and C. W. Turner. Three reports have been published by the Council on recommendations of this committee. These reports were carefully prepared after intensive study, and the Council has notified manufacturers of certain estrogenic products that it is now in position to consider evidence to determine acceptability or nonacceptability of these products. Other types of endocrine preparations will be considered when the Council is convinced that the time is ripe for their proper appraisal.

Other important questions that have received the attention of the Council deal with the nomenclature of vitamins when the pure principles have been isolated and with definitions of substances that may be produced through the use of entirely different methods.

REPORTS OF THE COUNCIL

For many years the Council on Pharmacy and Chemistry has published reports on submitted products through the columns of THE JOURNAL after such products have been accepted or rejected. Of late years a number of products giving promise of usefulness but in a purely experimental status when neither acceptance nor rejection is warranted have been considered by the Council. Such products have been made the subjects of preliminary reports. A number of such reports have been published during the past year, and some of them have attracted widespread attention. Among the products thus reported are chondroitin, cyclopropane, refined and concentrated antipneumococcic serum type VII, trichophytin and oidiomycin.

A cooperative committee representing the Council on Pharmacy and Chemistry and the Council on Foods, organized in 1935, continued its work during the past year and prepared an important report on the status of certain questions concerning vitamins. The demand for copies of this report was so great that it was necessary to have an extra printing. Those problems pertaining primarily to foods which received the consideration of the cooperative committee are reported on by the Council on Foods.

Another report of the Council dealt with decisions with reference to vitamin E and high potency viosterol preparations.

A special report of the Council had to do with the use of the terms "sterile," "sterilize" and "sterilization," the Council having been asked by the Food and Drug Administration of the U. S. Department of Agriculture to express an advisory opinion on the use of these terms. It is the contention of the Council that these terms should not be used other than in their correct, scientific significance, which indicates the absence or destruction of all micro-organisms.

During the year the Council has published numerous reports on products that were not found acceptable for inclusion in New and Nonofficial Remedies. In some instances producers have taken off the market some of the products dealt with in these reports, while in other instances the Council has been asked to withhold final action until satisfactory convincing evidence justifying claims made can be offered.

PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies.—In previous years New and Nonofficial Remedies has been revised annually, and supplements have been issued at various times during each year in order that subscribers may be properly informed concerning products that have been found acceptable in the interim between annual editions of this publication. In 1936 the issuance of a

new edition of New and Nonofficial Remedies was delayed for the reason that the U. S. Pharmacopeia and the National Formulary did not become official until June 1, 1936. The revision of the Pharmacopeia and of the National Formulary made it necessary to reedit and reset completely all material included in New and Nonofficial Remedies. The arrangement of the 1937 volume will differ from that of previous editions and will include a number of new products accepted for inclusion during the year 1936. A considerable number of products that formerly were included in New and Nonofficial Remedies will be omitted from the 1937 volume.

Epitome of the U. S. Pharmacopeia and National Formulary.—The issuance of the new decennial editions of the U. S. Pharmacopeia and the National Formulary made necessary a drastic revision of this publication of the Council. The original printing of 5,000 copies was quickly exhausted, and a second printing was necessary.

Useful Drugs.—The book Useful Drugs continues to enjoy wide popularity. The selected list of drugs contained in this book is used by many individual physicians and as a text in a number of medical schools. It was revised during the year in order to bring it into conformity with the new Pharmacopeia and National Formulary. During 1936 more than 7,400 copies of this book were distributed.

Glandular Physiology and Therapy.—In December 1935 a series of articles on glandular physiology and therapy that had appeared in THE JOURNAL was printed in book form. During 1936, 5,300 copies of this book were distributed and a second revised printing was made. This book will shortly be published in German, and arrangements have been made for a Polish translation. Because of the illness of one of the official translators a proposed French translation had to be given up, and a Spanish translation was interfered with because of the development of the civil war in Spain. Arrangements for translation into Italian are still pending.

Hospital Practice for Interns.—Revision of this publication was begun late in 1936, but the new and revised volume will soon be ready for publication under the joint auspices of the Council on Medical Education and Hospitals and the Council on Pharmacy and Chemistry. This book is intended as a reference book for the intern and for the practicing physician. In no sense is it intended to serve as a textbook.

SPECIAL INVESTIGATIONS

Catgut Sutures.—With the aid of a special committee appointed by the Council on authorization of the Board of Trustees, an investigation of catgut sutures on the market was undertaken. Examinations were made of approximately 1,100 sutures, purchased for the most part on the open market. The official report on this investigation had not been published at the time of the preparation of the report of the Council, but the manufacturers of catgut sutures have been informed of the conclusions of the committee, and beneficial results already have become apparent.

Nonspecific Protein Therapy.—The Council has under way an investigation of certain problems pertaining to nonspecific protein therapy.

Injection Treatment of Hernia.—A questionnaire pertaining to the injection treatment of hernia has been sent to physicians and hospitals in various parts of the country. After a careful analysis of replies received, the Council issued a report on the status of this particular method of treatment.

MEMBERSHIP OF THE COUNCIL

Dr. Reid Hunt, a member of the Council since its creation in 1905, submitted his resignation March 1, 1936, at the time of his retirement from the faculty of Harvard University. Dr. Hunt's resignation was accepted with genuine regret. As a member of the Council on Pharmacy and Chemistry for more than thirty years and as its chairman from 1927 to 1936, Dr. Hunt rendered invaluable service.

During the year Dr. E. M. K. Geiling, professor of pharmacology at the University of Chicago, was elected to succeed Dr. Hunt, and Dr. W. C. Rose, professor of biochemistry at

the University of Illinois, was elected to fill the place formerly occupied by Dr. Lafayette B. Mendel, whose death was previously reported.

Summary

There is a rather constant increase in the number of products submitted for official consideration by the Council on Pharmacy and Chemistry and a gratifying tendency toward better cooperation on the part of producers of pharmaceuticals. A number of producers are strengthening their laboratory and research facilities and are utilizing the services of well qualified scientific investigators.

The general subject of nomenclature of therapeutic agents has demanded much attention on the part of the Council. Chaotic conditions have existed with respect to the nomenclature of endocrine principles and, through the aid of a group of consultants, it is believed that important contributions have been made to the knowledge of glandular therapy.

The established publications of the Council have been continued, with necessary revisions, and several special reports have been prepared and published.

The Council, with the aid of a special committee, has conducted an investigation of catgut sutures on the market. It also has instituted a special investigation of certain problems pertaining to nonspecific protein therapy.

Council on Physical Therapy

CONSIDERATION OF APPARATUS

Probably one of the most important functions of the Council is the publication of reports on apparatus submitted and investigated, as well as on apparatus offered for sale that is not submitted for consideration. The consideration of short wave diathermy machines took the lead for the year over all other apparatus. In view of the investigative work in the therapeutic usefulness of these machines, the Council feels justified in stating that, based on present available evidence, (1) there is no specific biologic action of high frequency currents, (2) there is no specific bactericidal action, and (3) the therapeutic effect is due to the heat produced. Twelve short wave diathermy machines were accepted. Many more were considered, some of which were rejected, while others are still under consideration.

It has come to the attention of the Council that many of these units will interfere with radio communication. The Council has gone on record to the effect that short wave machines will not be accepted in the future unless they are protected by filters or other devices to minimize interference. Among the appliances considered and accepted were positive and negative pressure machines, diathermy machines, vaporizers, inhalators, hearing aids, ultraviolet and infra-red devices, and oxygen therapy equipment.

EDUCATIONAL ACTIVITIES

Another important function of the Council is its educational activities. These are sponsored in a large measure by the consultants on education appointed by the Council on Physical Therapy. A number of state and county medical societies have cooperated by having discussions of physical therapy on their programs. Reports have come to the Council that young physicians are now taking graduate courses in physical therapy at various institutions.

Films available for loan by the Council have been shown at about thirty-five institutions and medical gatherings. At least eighteen lectures on physical therapy were given in various localities by the members of the Council. Twelve exhibits, including the exhibit at the regular annual session of the Association at Kansas City, were staged in cooperation with the Committee on Scientific Exhibit of the American Medical Association. The Council still believes that there is a vast opportunity for spreading information concerning the value of physical therapy among general practitioners. The Council is particularly anxious to make known the value of heat, massage and exercise. In the opinion of the Council, a very narrow view of the possibilities of physical therapy is pre-

sented to physicians by the representatives of manufacturers of apparatus calling on them. The consultants on education and the Council itself will attempt to secure speakers for medical societies.

In the course of the year, eight special articles were published in *THE JOURNAL*. These articles have been widely read and many reprints have been furnished to physicians on request. Among those which brought forth comment was the "Report of the Committee on the Present Status of Physical Therapy." In this, its second report, the committee pointed out that the status of physical therapy in its relation to general medicine has improved considerably since the first report ten years ago, in that there is a better understanding of the field as a whole by the physicians generally, that the usefulness and limitations of physical therapy agents are better understood and that the activities of the Council in its attempt to disseminate reliable information on this subject have been well rewarded.

Oxygen therapy, artificial fever therapy, passive vascular exercise and other important physical therapeutic measures that have been established within the last decade have received consideration.

The article "The Interrupted Low Frequency and the Constant Electric Current in Medicine" was the first adopted pronouncement of the Council on this subject. The scope and limitations of the field were discussed and a statement of possibilities of the agents was given.

SPECIAL INVESTIGATIONS

Shoes.—Progress is being made in the consideration of orthopedic equipment, including shoes. Consultants skilled in orthopedic surgery, appointed by the Council, have been preparing regulations for the consideration of shoes. While the specifications are not yet complete, the Council hopes to publish its report in the near future.

Audiometers.—A group of otologists has been appointed and is preparing regulations for acceptable audiometers and hearing aids. The American Society for the Hard of Hearing and the American Standards Association have cooperated in the consideration of hearing aids and audiometers.

Ophthalmologic Devices.—In cooperation with the Committee on Standardization of Instruments and Drugs of the Section on Ophthalmology of the American Medical Association, certain ophthalmic appliances for which therapeutic and diagnostic claims are made have been investigated and reported on in *THE JOURNAL*.

Research.—During the past year the Council awarded six grants to aid in research. These grants are made available to physicians and investigators who make application and who, in the opinion of the Committee on Research of the Council, have a problem of merit.

Handbook of Physical Therapy.—The second edition of the Handbook of Physical Therapy was completed this year. New chapters have been added and the entire book has been revised. In the opinion of the Council, the Handbook is more practical than the original edition and should be of great value to the general practitioner. Apparently it has been well received by the profession, since the original printing of 4,000 copies has been exhausted.

Apparatus Accepted.—The booklet "Apparatus Accepted" has again been revised to include all the products that have been accepted up to December 1936. When this booklet is revised, it is expected to be made larger by the addition of general discussions and will conform in general appearance to New and Nonofficial Remedies.

Seal of Acceptance.—A seal denoting acceptance of a product has been adopted by the Council on Physical Therapy.

The Council is greatly indebted to a number of physicians in various parts of the country, who have rendered most able assistance in promoting its work.

CHANGES IN MEMBERSHIP

In the death of Dr. F. J. Gaenslen the Council lost one of its most honored and efficient members.

Dr. George Miller MacKee and Dr. Robert B. Osgood, after several years of splendid service, found it necessary to resign because of other important duties.

Dr. Frank Dickson, Dr. Frank R. Ober and Dr. George C. Andrews were elected to succeed Drs. Gaenslen, MacKee and Osgood.

Summary

Consideration of apparatus is an important function of the Council. Appliances and devices considered have included wave diathermy machines, positive and negative pressure devices, vaporizers, inhalators, hearing aids, ultraviolet and infra-red lamps, and oxygen therapy equipment and apparatus intended for use in ophthalmology.

A number of state and county medical societies have cooperated with the Council by making programs on physical therapy available to their members. The Council feels that there is need and opportunity for disseminating information concerning the value of physical therapeutic measures among the general practitioners. The Council and its consultants will gladly cooperate with medical societies in securing speakers. Films are available for loan to medical societies that are interested.

Regulations for acceptable audiometers, orthopedic equipment including shoes, and radon preparations are now being prepared.

Six grants to aid in research on physical therapy problems were awarded.

New chapters have been added to the Handbook of Physical Therapy, and the entire book has been revised and published.

"Apparatus Accepted" has been revised to include all of the products that have been accepted up to December 1936.

The Council on Physical Therapy has adopted a seal of acceptance.

Council on Foods

The Council on Foods was first organized as a subcommittee of the Council on Pharmacy and Chemistry in an era characterized by the promulgation of extravagant nutritional claims for many ordinary foods. Misleading health claims were presented to the public over the radio, on cards in grocery stores and drug stores and even in restaurants, on bill boards, in newspapers and in magazines of both popular and semiscientific character. Today, partly as a result of the activities of this group, now known as the Council on Foods, these extravagant or misleading claims are seen and heard much less frequently.

Manufacturers of useful products who formerly resorted to more or less bizarre advertising have notified the Council that they have discontinued the use of such advertising and desire to have their products accepted by the Council and to comply with the Council's rules.

GENERAL POLICIES

The objectives of the Council on Foods are much clearer now than when the Committee was founded primarily to pass on health claims made in the advertising of food products. The Council not only passes on advertising claims but seeks to maintain high standards for food products, these standards being set by appropriate governmental agencies. The Council has reached an eminence where it is consulted frequently by public health officials and other officers charged with the maintenance of community standards for food products.

While maintaining its work in summarizing statements of policy toward claims made for foods, the Council has more recently undertaken to prepare reports on the nutritional significance of different classes of foods. These are published from time to time as general decisions and reports of the Council. It is anticipated that more and more of the Council's facilities will be directed in the future toward the preparation of educational reports on foods. These will fill a need which is met by no other organization. The reports that have been issued to date have met with a favorable response on the part of individual physicians and nutritionists.

LIMITATION OF SCOPE OF FOODS CONSIDERED

Early in 1936 the Council decided that it might well conserve its facilities by eliminating its attention from those classes of foods which least require attention. It was decided that ordinary bread and ordinary bakery products need no longer be considered. Manufacturers of accepted products were thereupon notified in advance that acceptance would be withdrawn on Jan. 1, 1937. All possible consideration was given so that manufacturers who had cooperated with the Council might use up current advertising and labels which bore the seal. With its action on bread, the Council began to plan to limit its scope even further and has eliminated a number of food products from consideration.

In limiting its scope, however, the Council has made it clear that it will review nutritional claims made in the advertising of food products of any class when such action is considered to be in the interest of the public and the profession.

NEW PRODUCTS ACCEPTED

The Council has, by its policy of limitations, relieved the office of considerable correspondence and has been able to begin again the acceptance of food products that fall within its scope. During the year 1936 a number of manufacturers who heretofore did not have their products accepted agreed to abide by the rules and decisions of the Council in their advertising and thus have had their products declared accepted, and the influence of the Council has been spread to that degree.

VITAMIN D FORTIFIED MILK

One of the problems to which the Council has devoted considerable attention is the fortification of foods with vitamin D. The Council and, of course, the medical profession in general have viewed with concern the tendency on the part of some manufacturers to add vitamin D to ordinary foods. The Council believes this practice encourages undue advertising emphasis but rarely serves any demonstrated need of public health or welfare. A policy toward fortification of foods with vitamins has been adopted by the Council and formulated as a general decision. A food is considered "fortified" if it is enhanced as to vitamin content or potency by the addition of vitamin concentrates, or of natural products of extraordinary vitamin potency, or by other means accomplishing the same results. In order that a fortified food may be accepted, the firm must present evidence that there is a definite need for an increased intake of the particular vitamin in question and that the food to which the vitamin is added is particularly suited as a vehicle. The Council has previously declared that a number of foods did not warrant fortification with vitamin D; namely, beer, cake, cake flour, ice cream, cheese and sausage and such accessories as chewing gum. More recently the Council has voted that, in view of the evidence now available, it will accept no vitamin D fortified food other than milk. Vitamin D is concerned with the metabolism of calcium and phosphorus. Milk provides an excellent source of these two dietary essentials. Furthermore, it has been observed by pediatricians that infants may consume vitamin D more regularly when it is incorporated with the milk.

In the vitamin D milk report, which was published in the issue of THE JOURNAL dated Jan. 16, 1937, but which was transmitted to the industry in the latter part of 1936, the Council has set up standards by which vitamin D milk will be considered and declared acceptable. No milk containing less than 135 or claiming more than 400 U. S. P. units of vitamin D per quart will be accepted. Milk containing less than 400 units per quart has enhanced nutritive value and when consumed in customary quantities (from 1½ ounces for each pound of body weight in early infancy and 1½ pints or more daily in later infancy) will prevent clinical rickets in infants. For milk containing 400 U. S. P. units per quart, it may be claimed that a margin of safety in the intake of vitamin D is provided, if the milk is ingested in the usual amounts prescribed by physicians. There must be no intimation in advertising of accepted vitamin D milks that the Council favors the use of any vitamin D fortified milk over the prescribing of other forms of vitamin D for infants or recommends the use of vitamin D milk to the exclusion of an additional supply of the vitamin in some other form. To be acceptable to the Council, bottle caps

and labels must declare the potency and the source of the vitamin D. Otherwise the standards of maintenance of quality previously in operation are enforced.

GENERAL DECISIONS OF THE COUNCIL

Among other problems considered by the Council on which general decisions have been published are an amendment of the rules governing use of the seal, an amendment of the decision on vitamin E claims in advertising directed to the public, a decision on the classification of yeast products, a discussion intended as a guide to advertisers on the subject of energy claims for foods, and a brief discussion of the desirable nutritional features of diets used for the reduction of weight and the requirements of foods for weight reduction.

REPORTS OF THE COUNCIL

There is considerable interest in the nutritional properties of different classes of foods. At the present time there exist no comprehensive and unbiased reviews of the nutritional properties of commercially prepared foods. It was believed that brief accounts of the available evidence on the nutritional significance of different kinds of foods would be valuable not only to physicians but to nutritionists, public health officers and manufacturers. The first report in this series was on vitamin D milk and consisted of a comprehensive critical review of the literature by Dr. Philip C. Jeans. This was submitted as a report to the Council, discussed principally the available evidence on the relative value of different varieties of vitamin D milk for infants, and served to summarize and to evaluate the many apparently conflicting reports in the literature.

Another report that has attracted some attention is one on the nutritional significance of bran. The Council concluded that bran is a useful food for many persons, particularly as a source of bulk in the diet, but according to available evidence there are some individuals who cannot tolerate bran. The Council therefore reaffirms its previous stand that statements relative to the relief of constipation must be reproduced in full as follows: "Constipation due to insufficient roughage in the diet should yield to bran when eaten regularly. A competent physician should be consulted in cases not corrected in this simple manner."

In recent years much attention has been directed to the vast amount of experimental evidence that has accumulated on the composition and nutritional value of gelatin, a food that has been recommended for inclusion in the diet of infants and for the feeding of patients with certain myopathies. The Council has reviewed the evidence and has reached the conclusion that gelatin, properly made, is a wholesome food and has special usefulness when one desires to add variety to the diet. The claim that gelatin is an *aik* in the digestion of milk is, in the opinion of the Council, not established at present. The claim that gelatin is of particular value as a source of aminoacetic acid for the treatment of some of the myopathies cannot be recognized. Even though gelatin contains 25 per cent of aminoacetic acid, the dosage of this acid in the treatment of myasthenia gravis or pseudohypertrophic muscular dystrophy is usually from 20 to 30 Gm. and it is apparent that gelatin can furnish only a small proportion of the proper dosage. Other reasons for not recognizing this claim are discussed in full in the published report.

The past year has witnessed a reorganization of the administrative offices of the Council. Along with the Council on Physical Therapy, the headquarters office of the Council on Foods is housed with the Council on Pharmacy and Chemistry. This placing together of the staffs of the three councils makes for closer cooperation in the activities of these three groups and insures the maintenance of similar policies toward problems of a similar nature that confront each council. The present staff of the Council on Foods now includes Dr. Ruth Cowan Clouse, who has returned after a leave of absence due to illness, Miss Marjorie Pickens, who has completed the work for degree of Doctor of Philosophy in physiologic chemistry at Yale University, a secretary and five office assistants.

MEMBERSHIP

The Council on Foods records with sorrow the death of one of its members, Dr. Edwin O. Jordan, Sept. 2, 1936. Dr. Jordan

was elected a member of the Council in 1933. He gave his time and counsel unselfishly, and his loss is felt keenly by the members. The Council also lost by death, Nov. 11, 1936, one of its former members, Dr. William McKim Marriott, who served on the Council from 1929 to 1931.

Dr. Howard B. Lewis, professor of biologic chemistry, University of Michigan, was elected to the Council in 1936 and Dr. James S. McLester, at the request of the Council and the Board of Trustees, resumed a membership interrupted by his election as President-Elect of the American Medical Association.

CONSULTANTS

The following persons were called on as consultants during the year, and the Council and the Board of Trustees gratefully acknowledge appreciation of their services: Dr. Walter C. Alvarez, Dr. R. M. Bethke, Miss Ruth Blair, Dr. Margaret Hessler Brookes, Dr. Daniel C. Darrow, Dr. George B. Eusterman, Dr. H. J. Fisher, Miss Mary A. Foley, Dr. Grace MacLeod, Dr. Isabel Noble, Dr. Henry C. Sherman, Dr. Genevieve Stearns and Dr. Dwight L. Wilbur.

Summary

The objectives of the Council on Foods are now much more clearly defined than previously in that efforts are being directed toward the maintenance of high standards for food products as well as for improvement in the nature of advertising.

Reports dealing with the nutritional significance of different classes of foods are now published as general decisions and reports of the Council, and it is expected that in the future these educational reports will constitute a distinct feature of the Council's work. Many food products formerly included in the scope of the Council's consideration are no longer so included, but the Council will continue to review nutritional claims made in the advertising of food products.

Special consideration has been given during the past year to the subject of fortification of foods with vitamin D, and a food is now considered "fortified" if it is enhanced as to vitamin content or potency by the addition of vitamin concentrates or of natural products of unusual vitamin potency or by other means accomplishing the same results. It is required that convincing evidence of a definite need for an increased intake of the particular vitamin in question shall be presented and that the food to which a vitamin is added is suited as a vehicle before a fortified food can be accepted for inclusion in the Council's official lists. In view of the nature of available evidence, the Council has decided that no vitamin D fortified food other than milk will be accepted. Standards by which vitamin D milk will be considered and declared acceptable have been established. No milk containing less than 135 or claiming more than 400 U. S. P. units of vitamin D per quart will be accepted.

Important decisions have been made by the Council with respect to advertising claims on vitamin E, the classification of yeast products, nutritional features of diets used for the reduction of weight and the requirements of foods intended to be helpful in effecting weight reduction, as well as decisions pertaining to bran, gelatin, and other products that have been widely used but the status of which heretofore has not been definitely fixed.

The Council has had the benefit of the advice and counsel of a number of distinguished physicians and scientists who have served as consultants, and their helpful service is gratefully acknowledged.

Chemical Laboratory

The Chemical Laboratory has been remodeled and enlarged in order that it may better meet constantly increasing demands. Important additions include an accurately air conditioned micro-analytical room and a room in which physical equipment, including a photospectroscope, has been installed. These new facilities will enable the Laboratory to take full advantage of advanced methods in chemistry and thereby to save much time that was formerly taken up because of the enforced use of

older and slower methods. The Association's Chemical Laboratory is now a well balanced unit equipped for both micro-chemical and macrochemical analysis as well as for physical chemical measurements.

In addition to the Director, four other splendidly qualified chemists are members of the Laboratory staff. The new Laboratory and the work that is being done have attracted great interest among chemists, and many professional men have called to inspect the arrangement and equipment.

During the past year in spite of the fact that it was necessary to close the Laboratory for several months because of building operations, a number of important problems have received attention and many products widely used in the practice of medicine have been carefully studied, including crystalline insulin, crystalline vitamin D, allantoin, pantocain, silver picrate, strophanthin and a number of hypnotic drugs. In addition, the Laboratory has, so far as possible, performed the usual services for the Bureau of Investigation and for other departments of the Association.

With the new equipment now available and with increased personnel, it is possible for the Laboratory to make important analyses in much less time and, in some instances, with greater accuracy than heretofore. By the use of the methods of micro-analysis and spectroscopy, it is now possible to make determinations with far smaller amounts of products to be examined than could be done under older analytical methods. In one instance a drug costing approximately \$2,000 a gram was submitted for analysis. Through the use of microchemistry and photospectroscopy, it was possible to make the necessary determinations with a minute amount of this product, and significant savings were thereby effected. In another instance a preparation offered for sale at \$20 per ampule was found to contain approximately one part of indigo in 100,000 parts of water.

The largest part of the work of the Laboratory is concerned with products submitted for the consideration of the Council on Pharmacy and Chemistry and with making investigations designed to insure the purity and the potency of accepted products.

Summary

The Chemical Laboratory has been remodeled and enlarged, and important modern equipment has been installed. The Laboratory is most largely concerned with matters referred by the Council on Pharmacy and Chemistry and the Bureau of Investigation but also undertakes independent investigations.

Bureau of Legal Medicine and Legislation

FEDERAL LEGISLATION

The Seventy-Fourth Congress expired with the adjournment of its second session, June 20, 1936. The bills of interest to the medical profession that were pending when the Board of Trustees prepared its report for submission to the House of Delegates in 1936 were briefly discussed in that report. Before the Congress adjourned, it enacted legislation to carry into effect three of the legislative proposals there discussed. Provision was made for the restoration and maintenance of medical units in the Reserve Officers' Training Corps. The tax payable under the Harrison Narcotic Act by universities, colleges, schools and laboratories using narcotic drugs for purposes of research, instruction and analysis was reduced from \$24 to \$1 a year. Provision was made whereby any clinic operated for charity and not for profit might obtain alcohol free from federal tax for use within the activities of the clinic, including use for the compounding of bona fide medicines for the treatment of clinic patients outside the clinic. All other federal legislation discussed in the report of the Board of Trustees in 1936 lapsed with the expiration of the Seventy-Fourth Congress.

With the convening of the Seventy-Fifth Congress, in January 1937, there came the usual flood of bills, some new and some bills that had been introduced in the previous congress or possibly in many previous congresses without having been favorably acted on. The Bureau of Legal Medicine and Legislation has endeavored to keep in touch with all these bills so far as they are of direct interest to the medical profession and the public health of the country and has endeavored to keep the profession informed concerning them through the columns of THE

JOURNAL. Some of the more important bills possibly call for brief discussion here.

United States Department of Health.—The President of the United States transmitted to Congress, Jan. 12, 1937, a message in which he stated that it would be necessary to establish a Department of Social Welfare. Accompanying that message was a report from the President's Committee on Administrative Management in the Government of the United States, in which the committee outlined the functions of the proposed department as follows:

"To advise the President with regard to social welfare.

"To administer Federal health, educational, and social activities; to conduct research in these fields; to administer Federal grants, if any, for such purposes; to protect the consumer; to conduct the Federal aspects of Federal-State programs of social security where need is the basis of payment to beneficiaries; to administer all Federal eleemosynary, corrective, and penal institutions; and to administer probation and parole." Senate Document No. 8, 75th Congress, 1st Session, page 61.

The President's message and the report of his committee were, at the date of the writing of this report, under consideration by a joint committee of the Senate and the House of Representatives. Action to preserve the integrity of medicine and the public health administration and looking toward the establishment of a Department of Health independent of the proposed Department of Social Welfare was taken by the Board of Trustees and is discussed elsewhere in this report.

Federal Health Insurance.—The Social Security Board has been and is engaged in the study of social insurance. It is understood that this study covers health insurance only as an incident in the larger program. It seems probable, however, that the board will ultimately make an intensive study of health insurance as such. A bill (S. 855, 75th Congress) for the establishment of a system of federal health insurance was introduced by Senator Capper of Kansas, January 15, and is now pending in the Senate Committee on Finance. The bill, prepared by or under the direction of Abraham Epstein, follows closely the other bills which have emanated from that source.

Taxation Under Social Security Act.—The social security act became a law Aug. 14, 1935. Physicians and medical associations have been directly affected by it only as employers and employees. In those relations they have the same status as other employers and employees. Their medical status does not of itself entitle them to any special benefit or subject them to any special burden. A medical association, however, may be exempt from taxation as an employer if organized and operated exclusively for scientific or educational purposes, provided no part of its net earnings inures to the benefit of any private shareholder or individual. This does not prevent such an association from carrying on such administrative activities as are necessary to accomplish its scientific and educational purposes, but just how far such administrative activities may go is a matter that must be determined in each instance by the Commissioner of Internal Revenue, on the basis of evidence submitted. Exemption should be formally established through the office of the Commissioner of Internal Revenue, on proper application by the interested association.

Medical Services for Federal Employees.—Under the United States Employees' Compensation Act, an employee of the federal government who suffers injury or develops disease attributable to his duties is entitled to medical and hospital services at government expense. Such services must be furnished by or on the order of United States medical officers and in United States hospitals, if this is practicable. If it is not practicable, medical and hospital services may be furnished by or on the order of private physicians and hospitals designated or approved by the United States Employees' Compensation Commission. In the designation and approval of private physicians the commission limits its choice to doctors of medicine duly licensed to practice medicine. In its designation and approval of hospitals it recognizes only reputable hospitals. A bill has been introduced in the Seventy-Fifth Congress (S. 1233 and H. R. 4650) proposing to give to every licensed osteopath, so far as designation and approval by the commission is concerned, the same status as that of doctors of medicine. This bill is before the committees on the judiciary of the houses in which they respectively were introduced.

Sale of Helium by the Bureau of Mines.—The House of Delegates, at its 1936 session, adopted a resolution approving the allotment by the federal government of helium for therapeutic use (Proceedings, House of Delegates, 1936, pp. 55 and 65). A bill has been introduced in the Senate (S. 1567, 75th Congress) and in the House of Representatives (H. R. 4415, 75th Congress) authorizing the sale to citizens of the United States or to United States corporations, under regulations approved by the President, of any helium produced by the United States Bureau of Mines that is not needed for government use. This bill has the support of the Secretary of the Interior. It is pending in the committees on military affairs of the Senate and the House.

Contract Surgeons of the Spanish-American War.—Bills have been introduced to restore the pensionable status of veterans and female nurses who served during the Spanish-American War, to provide similar benefits for male nurses, and to do likewise for teamsters and others. The contract and acting assistant surgeons who rendered such valuable service have been neglected. The status of contract and acting assistant surgeons was considered, however, by the Committee on Pensions of the House of Representatives when H. R. 4013 (later reintroduced and reported favorably as H. R. 5030) relating to the pensions of veterans and female nurses was under consideration. As contract surgeons and acting assistant surgeons were not technically a part of the military forces, they were not included; their inclusion in the bill would render enactment of the bill more difficult and might even lead to its veto and thus lessen the chances of the veterans and female nurses obtaining the legislation that they seek. So far as can be learned, it is for this reason that contract surgeons and acting surgeons are to be denied, for the present at least, the benefits given others who rendered service no more meritorious than theirs.

Foods, Drugs, Therapeutic Devices and Cosmetics.—Before the Seventy-Fourth Congress adjourned, the Senate had passed a bill (S. 5, 74th Congress) for the better regulation of interstate commerce in foods, drugs, therapeutic devices and cosmetics. The House of Representatives struck out all after the enacting clause of the Senate bill and inserted an entirely new bill, which it then passed. The bill passed by the Senate and as amended and passed by the House seemed to fall short of what was required for the protection of the public. It was grossly inadequate in its provisions relating to drugs and the medical profession. There was little to choose between the Senate and House provisions. The Senate and the House of Representatives, however, reconciled all their differences except that relating to the control of advertising. The Senate proposed to vest authority in the Department of Agriculture, with power to proceed against offenders through the ordinary channels of criminal prosecution and injunction. The House of Representatives, however, proposed to confer authority over the advertising of foods, drugs, therapeutic devices and cosmetics on the Federal Trade Commission, with its much slower processes. No compromise could be reached, and the bill failed of enactment.

Almost immediately on the convening of the Seventy-Fifth Congress, there was introduced at the instance of Senator Copeland of New York a food, drug, therapeutic device and cosmetic bill (S. 5, 75th Congress) based on the bill introduced by him in the Seventy-Fourth Congress but which, after having passed the Senate, failed in conference. The new bill was in many respects a stronger and better bill than the one that failed. With few amendments, it passed the Senate and at the present writing (March 28) is now pending in the House of Representatives, before the Committee on Interstate and Foreign Commerce. In the House of Representatives a food, drug, therapeutic device and cosmetic bill was introduced by Representative Chapman of Kentucky, similar to the bill that passed the House of Representatives and failed in conference in the Seventy-Fourth Congress, but not identical with it. This bill along with seven others relating to foods, cosmetics and drugs, and along with the Copeland bill that has come over from the Senate, is at the present writing pending before the Committee on Interstate and Foreign Commerce.

STATE LEGISLATION

A survey of state legislation in 1936 of interest to the medical profession was published in the AMERICAN MEDICAL ASSOCIATION

TION BULLETIN for December 1936. Throughout the year, when state legislatures were in session, reports of the activities of state legislatures, so far as they might have a direct bearing on the medical profession, were published in the news columns of THE JOURNAL. Hereafter such publication will be in the Organization Section of THE JOURNAL. The Bureau of Legal Medicine and Legislation was in constant correspondence with constituent state medical associations in those states to which such legislation related. The more important measures of interest to the medical profession are discussed later.

Health Insurance.—Bills proposing the establishment of systems of compulsory state health insurance were considered in New York and Rhode Island. Neither of these bills was enacted. Both were patterned closely after the bill described by its proponents as a "Social Security Bill for Health Insurance" but which is popularly known as the "Epstein Bill," because of the activities of one Abraham Epstein, the secretary of the American Association for Social Security, Inc., by which the bill was prepared, drafted and sponsored. During the current year, 1937, at the present writing (March 28), health insurance bills have been introduced in five states. The bills in four of the states are patterned after the Epstein bill. The bill in the fifth state, Washington, was patterned after the health insurance act adopted in 1936 in British Columbia but which is believed to be so unworkable that no attempt is being made to give it effect.

Narcotic and Hypnotic Drugs.—The uniform narcotic drug act, drafted by the National Conference of Commissioners on Uniform State Laws, with the cooperation of the Bureau of Legal Medicine and Legislation, was enacted in 1936, with little modification, in Mississippi. So far in 1937 the uniform act has been enacted in four states, Idaho, Minnesota, Montana and Wyoming, and is pending or was considered in nine other states. The act, in its original or somewhat modified form, is now in force in thirty-one states. A law, separate and distinct from the state uniform narcotic drug act, was adopted in Virginia in 1936, to prohibit the possession, sale, use, distribution or production of cannabis. The law provides, however, that it is not to be construed as applying to licensed growers or to licensed manufacturers of drugs and medicinal supplies, hospitals, registered wholesale and retail pharmacists, or to licensed physicians, dentists or veterinarians. A similar law has been enacted so far in 1937 by one other state, Arkansas.

No laws were enacted in 1936 limiting the retail sale or distribution of hypnotic and somnifacient drugs, such as barbituric acid derivatives, to sale and distribution on the prescription of a licensed physician, dentist or veterinarian. Laws of this type have been enacted in recent years in fourteen states, and 1936 was the first year since 1929 during which there was no legislation on the subject. At present writing bills of this type are pending in seven states.

Laws Relating to the Healing Art.—Because the Supreme Court of Arizona declared that the Arizona basic science act had never had the force of law, since it had been adopted as a referendum measure at an election other than a general election, and not at a general election as required by the state constitution, the Arizona legislature found it necessary in special session to reenact it. It was reenacted in such form as not to be subject to referendum. An important amendment to the Massachusetts medical practice act was adopted in 1936 requiring, among other things, that an applicant for a license to practice medicine, in addition to previous requirements, (1) have completed two years of premedical collegiate work, including physics, chemistry and biology, in a college or university approved by an approving authority created by the act, consisting of the secretary of the board of registration in medicine, the commissioner of education and the commissioner of public health, and (2), in effect, have received the degree of doctor of medicine or its equivalent from a legally chartered medical school approved by the approving authority. In the past the board had to accept the credentials of any legally chartered medical college. No osteopathic, chiropractic or naturopathic legislation was enacted in 1936. Much cult legislation has been introduced so far in the 1937 legislative sessions, but no important bill has been enacted up to the date of this writing (March 28). A bill to create a separate naturopathic practice

act passed both houses in New Mexico but was vetoed by the governor.

The Virginia law granting liens to hospitals treating persons injured through the negligence of others, on all rights of action, claims, judgments or compromises accruing to the injured persons because of their injuries, was so amended in 1936 as to grant such liens to physicians and nurses also under similar circumstances. So far in 1937 a medical and hospital lien law has been enacted in Washington.

Hospital Service Corporations.—Laws were enacted in Massachusetts and Mississippi in 1936 authorizing the formation of corporations to provide hospital care to their members or subscribers. The Massachusetts law contemplates that such corporations operate on a nonprofit basis, but the Mississippi law seems to permit such a corporation to operate for profit. Bills to permit the formation and operation of hospital service corporations have been introduced in eight state legislatures so far in 1937, with no enactments up to the time when this report was prepared.

Workmen's Compensation.—Legislation relative to occupational diseases was enacted in Illinois, Rhode Island and New York in 1936. In Illinois the act provides compensation for any occupational disease arising out of and in the course of employment. In Rhode Island the workmen's compensation act was so supplemented as to make compensable about thirty-one stated occupational diseases. The New York law making compensable any and all occupational diseases was amended so as to limit the compensation and medical treatment for which an employer is liable under it to a worker partially or totally disabled from silicosis or other dust diseases. Under a law enacted in Massachusetts in 1936 the liability of an insurer to furnish adequate and reasonable medical and hospital services is limited to the first two weeks after the occurrence of an industrial injury (and not after the beginning of incapacity, as the prior law provided) and in unusual cases or cases in which specialized or surgical treatment is required, in the discretion of the department, for a longer period. The new law also confirms the right of the worker to select his own physician.

So far in 1937 bills have been introduced in a number of states (1) to permit an injured workman to select the physician whom he desires to treat him at his employer's expense and (2) to extend the limits of liability of the employer for medical and hospital services rendered an injured worker. None of these bills have been enacted as yet. A workmen's occupational disease act practically identical with the Illinois act referred to has been enacted in Indiana in 1937. A great number of bills to make occupational diseases compensable are pending at this writing (March 28) in a number of other states.

MEDICAL AND HOSPITAL CARE FOR RESETTLEMENT ADMINISTRATION CLIENTS

The Federal Resettlement Administration is authorized to make grants to farm owners, farm tenants, share croppers, farm laborers, persons on the official rolls of the Resettlement Administration, Aug. 14, 1936, and other persons who on that date were living on farms and in farm areas and who, when last employed, received the major portion of their income from farm operations. Such grants take into consideration the employability of the grantee, ordinarily indicating potentiality for rehabilitation. His eligibility for relief is construed as having been established when it has been determined through personal investigation that his material and credit resources are inadequate to maintain health and prevent suffering (*Federal Register*, Aug. 18, 1936, p. 1296). In connection with these relief activities, the Resettlement Administration has endeavored to aid its clients in obtaining adequate medical and hospital care. Unable to pay physicians and hospitals directly for such care, the administration has endeavored to afford relief through loans to its clients wherewith to pay for it, or to corporations organized by or on behalf of its clients through which they might obtain loans for that purpose.

Because of the excessive number of persons in certain rural areas who in 1936, because of drought and dust storms, were unable to provide medical care for themselves and their dependents, the Resettlement Administration deemed it best to establish in North Dakota and South Dakota so-called farmers' aid corporations, through which clients of the administration

might obtain loans for medical and hospital purposes more conveniently than from the administration itself. Unfortunately, the articles of incorporation of these associations were drafted in such a way as to continue them far beyond any period within which specific farm relief in the states named can be regarded as likely to be needed and so as to give such corporations powers far beyond those necessary to enable them to carry on the activities for which they were supposedly created. The dangers inherent in these excesses were pointed out to the North Dakota State Medical Association and the South Dakota State Medical Association. Both of them, however, entered into agreements to cooperate with their respective farmers' mutual aid associations for limited periods.

In states other than North Dakota and South Dakota, the need for rural relief does not appear to have been so desperate. As a result the Resettlement Administration has endeavored to arrange with county medical societies for reduced charges for medical services rendered its clients, loans to be made by the administration to its clients to whom medical or hospital service has been rendered, with the understanding that the money so lent to the client shall be paid by him to the physician or hospital that rendered service. Properly safeguarded so as to prevent imposition on the medical profession by clients in rural areas who are able to provide for their own medical needs, this plan seems unobjectionable.

SILICOSIS

At the invitation of the Secretary of Labor, the Board of Trustees delegated the Director of the Bureau of Legal Medicine and Legislation to serve as a member of a committee to study silicosis with a view to recommending better preventive measures and measures for compensation. The committee has submitted its final report, which it is expected will soon appear as a public document.

The deliberations of the committee disclosed a strong desire on the part of the representatives of labor to limit state departments of health to scientific and technical advisory work and to vest in departments of labor all authority and responsibility for the administration of the laws and regulations relating to silicosis. In the end, the committee recommended that the control of silicosis be entrusted to a scientific body and an administrative body but left each state to determine for itself whether it will place both of these agencies in its department of health, or both in its department of labor, or one in one department and the other in the other department. It is obvious, however, that, other things being equal, a disinterested technically informed body, such as the state department of health, which stands neutral between employer and employee, can do more effective work than will be done by any lay agency that cannot escape the suspicion of being partisan, at least subconsciously, and inclined to favor the employee as against the employer. State departments of health, too, have the advantage of being correlated to analogous cooperating health units throughout the state; namely, municipal, county and district health departments.

Integration of the Medical Profession.—There have been no developments during the year looking toward the so-called integration of the medical profession in any jurisdiction, along the lines of organization recently adopted for the organization of the bars of the several states.

MEDICOLEGAL CASES: 1931-1935

The Bureau published in 1936 its second volume of abstracts of medicolegal court cases, containing abstracts that had appeared in *THE JOURNAL* during the calendar years 1931 to 1935, inclusive. This volume contains a table of cases and 813 pages of abstracts and carries, as did its predecessor, an adequate index by the use of which all major points of medicolegal interest involved in the abstracted decisions may be readily referred to by physicians, lawyers, claim adjusters and other users of the volume.

The Board of Trustees expresses its appreciation of the hearty cooperation given to the Bureau of Legal Medicine and Legislation during the past year by constituent associations and component societies and by many individual physicians.

Summary

1. *The United States Department of Health.*—The establishment of a Federal Department of Social Welfare

has been recommended by the President, to administer federal health, educational and social activities. Action intended to be helpful in preserving the integrity of medicine and the public health and to promote the creation of a Department of Health, independent of the proposed Department of Social Welfare, has been taken.

2. *Federal Health Insurance.*—The Social Security Board has been engaged in a study of social insurance, including health insurance. Indications are that the board will ultimately make an intensive study of health insurance. A bill, prepared by or under the direction of Abraham Epstein, is pending in the Senate Committee on Finance, proposing to establish a system of federal health insurance.

3. *Social Security Act.*—Physicians and medical associations are affected by the taxes imposed by the Social Security Act only to the extent that employers and employees generally are affected. A medical association may be exempt from the taxes if organized and operated exclusively for scientific or educational purposes and if no part of its income inures to the benefit of any private shareholder or individual. Application for exemption should be filed with the office of the Commissioner of Internal Revenue.

4. *Medical Services for Federal Employees.*—A bill pending in Congress proposes to accord to osteopaths equal rights with doctors of medicine in the treatment of federal employees under the United States Employees' Compensation Act. Protests against the enactment of this bill have been filed.

5. *Sale of Helium by the Bureau of Mines.*—The sale of helium to United States citizens or corporations by the Bureau of Mines is proposed to be authorized by a bill pending in Congress, which has the approval of the Secretary of the Interior and the American Medical Association.

6. *Contract Surgeons of the Spanish-American War.*—The injustice that has been done to contract surgeons of the Spanish-American War continues. Pending legislation to grant increased pensions to veterans of that conflict omits reference to contract surgeons although continuing recognition of other persons who rendered services no more meritorious.

7. *Food, Drugs, Therapeutic Devices and Cosmetics.*—In the Seventy-Fourth Congress, the Senate and the House were unable to compose their different views with respect to the federal agency to have jurisdiction over the advertising of food, drugs, therapeutic devices and cosmetics, and as a result legislation then pending to revise the federal food and drugs act died with the adjournment of the Congress. When the Seventy-Fifth Congress convened, a stronger and better bill, in many respects, than the one passed by the Senate in the Seventy-Fourth Congress was immediately introduced in and ultimately passed by the Senate. It is now pending in the House Committee on Interstate and Foreign Commerce along with other bills relating to the same subject matter. The outcome of this legislation cannot safely be prophesied.

8. *State Health Insurance.*—During 1936, bills patterned after the so-called Epstein bill were introduced in two states, to establish systems of compulsory health insurance. In 1937 to date (March 28) similar bills have been introduced in four states. In another state, a bill patterned after the British Columbia health insurance act has been introduced.

9. *Narcotic and Hypnotic Drugs.*—The uniform narcotic drug act, approved by the American Medical Association, was enacted with slight modification in one state in 1936. In 1937, to date, the uniform act has been passed in four states. It is now in force in thirty-one states, either in its approved or in a modified form. A law relating to the possession, sale, use, distribution or production of cannabis was enacted in 1931 in one state and a similar law has been enacted to date in another

state in 1937. Laws relating to the retail sale or distribution of certain hypnotic and somnifacient drugs have been enacted in recent years in fourteen states. Bills relating to such drugs are now pending in seven states.

10. Laws Relating to the Healing Art.—The Supreme Court of Arizona voided the basic science act of that state in 1936 on the ground that it had been improperly submitted to a vote of the people at a special election. The legislature, however, reenacted the bill. The medical practice act of Massachusetts, in 1936, was amended to impose a two years college educational requirement on applicants and to authorize a board consisting of the secretary of the Board of Registration in Medicine, the commissioner of education and the commissioner of health to pass on the credentials of medical colleges.

While no cult legislation was enacted in 1936, many bills of that nature are now pending in the legislatures of the several states. A bill providing for a separate naturopathic practice act passed both houses in New Mexico but was vetoed by the governor.

In 1936 the Virginia hospital lien act was amended to accord its benefits to physicians and nurses. In 1937 a medical and hospital lien law has been enacted in Washington.

11. Hospital Service Corporations.—In 1936 two states enacted laws providing for the formation of corporations to provide hospital care to their members or subscribers. Bills contemplating the formation and operation of such corporations have been introduced in eight state legislatures in 1937.

12. Workmen's Compensation.—In 1936 legislation relative to occupational diseases was enacted in Illinois, New York and Rhode Island, and in 1937 in Indiana. Many bills relating to the compensability of occupational diseases are pending in the legislatures at the present time.

A law enacted in Massachusetts in 1936 reaffirms the right of an injured employee to select his own physician but limits the liability of an insurer with respect to the furnishing of medical and hospital services. Legislative proposals are under consideration in a number of states to permit injured workmen to select their own physicians and to extend the limits of liability of the employer for medical and hospital services.

13. Medical and Hospital Care for Resettlement Administration Clients.—The Resettlement Administration, in connection with its relief activities, has endeavored to aid its clients to obtain adequate medical and hospital care through the medium of loans made directly to such clients or indirectly through corporations organized by and on their behalf. In North Dakota and South Dakota, because of severe economic stress in the rural areas, so-called farmers' aid corporations were formed by the Resettlement Administration through which relief clients might obtain loans for medical and hospital purposes. These corporations, however, were organized along lines that raised questions of utmost importance to the medical profession. In other states the Resettlement Administration has endeavored to arrange with county medical societies for medical services for its clients, at reduced rates, loans to be made by the administration to its clients to pay for such services. The latter plan, properly safeguarded, seems unobjectionable.

14. Silicosis.—The Director of the Bureau, at the invitation of the Secretary of Labor, served as a member of a committee to study silicosis. The committee recommended that the control of silicosis be entrusted to a scientific body and an administrative body but left each state to determine for itself whether these agencies are to be placed in the department of health or in the department of labor. A disinterested technically informed body can obviously do more effective work than can be done by any lay agency. The committee has submitted its final report, which will probably soon appear as a public document.

15. Integration of the Medical Profession.—There have been no recent developments looking toward the so-called integration of the medical profession along the lines or organization recently adopted for the organization of the legal profession of the several states.

16. Medicolegal Cases: 1931-1935.—The Bureau published in 1936 its second volume of abstracts of medicolegal court cases, containing abstracts that had appeared in The Journal during the calendar years 1931 to 1935, inclusive.

17. Medical Units in Reserve Officers' Training Corps.—In 1936 Congress restored medical units in the Reserve Officers' Training Corps.

18. Tax Payable by Medical Schools Under Harrison Narcotic Act.—A reduction from \$24 to \$1 a year was effected in 1936 in the tax payable under the Harrison Narcotic Act by universities, colleges, schools and laboratories using narcotic drugs for research, instruction and analysis.

19. Tax Free Alcohol for Charitable Clinics.—Clinics operated for charity were authorized by a law enacted by Congress in 1936 to obtain alcohol free from federal tax for use in such clinics.

Bureau of Medical Economics

The Bureau of Medical Economics during the past year has endeavored to set forth in the published reports of its studies more of the economic principles that should govern in various forms of medical practice.

UNIVERSITY AND COLLEGE STUDENT HEALTH SERVICES

The study of university and college student health services was completed and published in February 1936. Information was received by the Bureau from 298 institutions having a student health service; twenty-five institutions replied that they did not maintain such a service.

The information on which the Bureau report was based was taken from the schedules returned by 255 of the 298 institutions having student health services.

The conclusions drawn from the study of the available data are as follows:

1. There has been, during the last decade, a steady increase in the number of institutions maintaining student health services. The trend is definitely toward a single department for the administration of the continuously expanding personal medical services and health activities.

2. Conclusions pertaining to the financial advantages or disadvantages of an organization of medical services for students are rendered dubious by the inadequacy and inaccuracy of the financial records for student health services. The reported cost per student is not appreciably less than the cost for similar services in the private purchase of medical and hospital care.

3. There appears to be a surprisingly large amount of capital invested in buildings and equipment devoted to health and medical services for students. A few health services have shown that student medical care plans can be operated effectively and economically without large investments in buildings and equipment by utilizing the medical agencies and facilities of the community.

4. There seems to be a general tendency to develop health and medical services in colleges and universities on an institutional rather than a community basis. The extension of student health services into comprehensive plans disrupts the professional practice of medicine into a system of institutional medical enterprises. Under such plans the patient is considered as a member of a restricted cultural group rather than as a human being subject to his entire environment.

5. There is a growing belief that the place of the student health service in the community medical scheme should be that of an agency to supervise the health of students and to teach health standards.

6. Neither the organization nor the conduct of student health services appears to have followed any generally accepted principles or objectives except to provide students with some sort of health instruction and variable forms and degrees of medical advice and care. The essential pedagogic and medical factors in the health program seem to have suffered because of new activities of student health services without careful investigation of their usefulness and largely designed to advance athletics.

7. There seems to be evidence to show that the health education of students, which is presumably the primary function of a student health service, has not always been as effective as might be expected of institutions of higher learning. The health education program, which should enable college students to acquire health principles and hygiene practices that will influence public opinion and social custom for the betterment of human health, has been neglected because of unnecessary emphasis on the treatment and management of illness among the students.

8. A universally accepted measure of performance or accomplishment by which the programs and benefits of student health services may be judged has not been evolved. The lack of a proper method of appraisal has permitted a confusion of clinical and health educational activities to the detriment of the more widely beneficial education program. The evaluation of student health services may be made possible by properly prepared health records and health tests.

9. It appears that a large percentage of universities and colleges are actually engaged in the practice of medicine in varying degrees. The successful operation of a few student medical care plans in accordance with the ethical principles of the medical profession indicates that there are no insurmountable obstacles to so operating other student health services.

10. The segregation of a section of the medical profession by student health services under standards built on a compromise between the ideals of medicine and the interests of educational institutions is proving harmful to the educational institutions and to the medical profession alike. This division within the medical profession reduces its influence in molding the standards and ethics of these plans into a form which will best serve in the prevention and cure of disease.

11. The number of instances in which a practical cooperative arrangement has been effected between the college and the county medical society of the college community for the medical care of students seems to be lamentably small. It does not appear likely that the health education objectives of a student health service will be achieved until harmonious cooperation is established between educational institutions and the medical profession.

Many copies of the report of the Bureau of Medical Economics have gone to persons who are interested in or are directly connected with student health services. Since the publication of this report, some significant tendencies have been noted.

Information received from Pennsylvania, Texas, Illinois and Washington indicates that the directors of student health services are changing their attitude toward medical service for students. In one state a program for student medical service plans, adopted by the department of education and approved by the state medical society, has been put into effect by a college with the endorsement of the county medical society. The accepted program includes regulations governing medical services which are in accord with the principles regarded as desirable in the Bureau report. The Bureau has had occasion to refer committees from colleges to county medical societies for further assistance in reorganizing arrangements for student medical care.

The chairman of a committee for the National Conference on College Hygiene commented very favorably on the report and asked the Bureau to suggest standards for consideration at the conference. An outline of proposed standards, principles and regulations to be discussed by another committee at the conference was submitted to the Bureau. A careful analysis of these proposals showed a most encouraging willingness on the part of the committee to agree with the point of view of the medical profession with regard to questions of medical services in universities and colleges.

As was indicated in the report, it appears that student health services are in a transition stage and that a splendid opportunity exists for county medical societies to assist in the organization of student medical care plans. Success in arranging medical service plans for students will result in much progress along the road toward private practice and an ever better medical service.

GROUP HOSPITALIZATION

No development in the field of medical economics, with the exceptions perhaps of sickness insurance and state medicine, has aroused more interest and discussion than has group hospitalization, or prepayment plans for hospital care.

During the recent economic depression, hospital income from endowments and voluntary contributions was decreased by about two thirds, the charity load was increased almost four-fold, and huge obligations growing out of capital investments or fixed costs remained unmet. It is believed that such conditions induced many hospitals in the United States to adopt group hospitalization plans as a means to secure needed income. The sponsors of these plans have offered them as a method of providing low cost hospitalization and have urged hospitals all over the country to adopt them.

A study has been made of the experiences of the majority of group hospitalization plans. The subject matter of the

report will be arranged according to the following main headings:

Introduction.

The Background of Group Hospitalization.

The Development of Group Hospitalization Plans.

The Status of Group Hospitalization Plans.

Insurance and Group Hospitalization.

The Relation of Group Hospitalization Plans to the Practice of Medicine.

Guiding Principles and Conclusions.

At the time this report was prepared there were fifty-six operating and thirty-four proposed group hospitalization plans that were being actively promoted. These ninety plans are all that remain active out of some 172 surveyed. This indicates a strikingly high mortality for group hospitalization plans. Some 469 hospitals were reported to be participating in plans in operation or proposed. At present the best estimate that can be made from available membership reports indicates that about 700,000 persons have become members of these schemes. Subscribers and their dependents are included in the membership reports in most instances. The number of subscribers—those who have actually signed their names to contracts and pay membership premiums for hospital insurance—is estimated to be about 500,000.

The number of these projects or the size of the membership is not the most significant development in the group hospitalization movement. The most important factor in this new method of marketing hospital services lies in the influence that it has on the relation of hospitals to medical practice. The hospital service contract seemingly cannot be limited to the provision of essential hospital facilities. With few exceptions, the contracts include medical services in one form or another. The practice of clinical pathology, anesthesia, radiology and physical therapy are a part of the practice of medicine. These services are medical services, whether performed by hospital employees under the direction of salaried physicians or by physicians who are practicing privately and have no contractual arrangement with hospitals. Whether physicians are salaried or not, they are governed by the Principles of Medical Ethics, which includes the principle that:

It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

If the profession encourages group hospitalization plans that include medical services, it cannot consistently object to hospitals profiting from the services of physicians when other special medical services are added to group hospitalization contracts.

The Bureau has repeatedly directed attention to the fact that group hospitalization is actually a form of insurance coverage. The determination of actuarially sound bases for premium rates, the careful selection of risks and the wise handling of funds are insurance duties that cannot be lightly undertaken by the inexperienced. The organizers of group hospitalization plans have accepted as probable experience that 10 per cent of the members will be hospitalized for an average stay of ten days, or that one patient-day per member annually will have to be provided. The rates charged subscribers and the payments to member hospitals are usually based on this expectation. The plan of group hospitalization has less reliable actuarial computations than health and accident insurance, which is notoriously unstable. Health and accident insurance companies have found that "the average person with a new form of insurance policy does not become 'insurance conscious' until he has had his policy a year or two—then the claims start to come in." The financial security of hospital insurance will depend on a more accurate estimate of anticipated losses than seems possible at present. Already it appears that certain groups, such as hospital employees, nurses, employees of physicians, women and adult dependents, are unusually hospital minded. Recently there has been a noticeable adoption of restrictions in hospital service contracts to prevent impending excessive hospitalization. On the other hand, some of the most ardent

proponents of hospital insurance schemes take the position that premium rates must be reduced. The indications from the schedules that have been returned are that hospitalization under group plans will be greater and the patient stay will be slightly shorter than expected. If the future financial security of these plans is at all doubtful, they should not now be held out as a solution to the financial ills of hospitals.

The financial balance sheets of some hospital insurance schemes may be deceptive. There appears to be a growing belief that these schemes are accumulating appreciable reserves. On the basis of total income, several plans have reported surpluses. If, however, hospitalization costs and administrative and promotional expenses are deducted from the *earned* income, surpluses would, in some instances, be materially reduced and apparent profits might be transformed into losses. A few of the better managed plans do report actual surpluses, but even these amount to less than \$2 per member, whereas a conservative reserve would be \$5 per member.

There appears to be a current attitude that reserves are unnecessary because member hospitals always stand ready to render services. However, since hospitals usually contract to render service only on the payment of a specified per diem rate, it is essential that funds be available when members of the plan need hospital care. At the present stage of hospital insurance schemes the question of the liability of member hospitals to provide service under the contract, if the funds of the plan should become exhausted, has not yet been determined. It is believed that greater security could be provided for members by guaranteeing both the available facilities of member hospitals and an adequate cash reserve.

During the present period of rapid membership growth, a low loss ratio can be expected. However, as the membership grows older and it becomes more difficult to obtain new members in groups large enough to avoid adverse selection, an increase in the number of persons hospitalized and in the costs of hospitalization will be probable. Thus, when the membership of these plans reaches a stationary point or begins to decline, an increase in the hospitalization of members and in costs can be expected. The actuarial basis for each plan will then require close scrutiny. If such developments occur, those plans which have ignored the setting up of reserves will be in a particularly hazardous position.

The new plan for group hospitalization is too often considered as a device to fill vacant hospital beds and to augment hospital income. These plans were originally supposed to be a method of assisting persons with limited means to secure necessary hospital services. It would therefore be assumed that such services should be rendered at less than regular rates. Accordingly, there should be some income limitation, at the "comfort level" of the community, to exclude those persons able to pay fair rates. If no concession in rates is made, that is, if the hospital continues to receive full fees for services rendered, there may be little justification in insisting on an income limitation for those who may subscribe. If the hospital continues to receive regular rates under the group hospitalization plan, the plan simply becomes a method for selling hospital service on a prepayment basis and the altruistic purpose is entirely lost. The value of the group hospitalization plan will then be determined by the answer to the question "Is it worth while to create an institution to provide hospitalization on a prepayment arrangement for hospital bills when the administrative costs are some 12 to 40 per cent of the patients' fees?" It is believed that a postpayment plan for those persons really unable to meet their hospital bills would be more economical. In a number of communities, county medical societies have created facilities whereby persons having low incomes may secure medical and hospital care at reduced rates on a deferred payment plan. The cost of administration of such plans is about 10 per cent, which is borne by the physicians and the hospitals. No interest, carrying charges or credit rating costs are added to the patient's bill. In the last analysis public opinion will decide which plan is wanted, but all persons should be entitled to the facts without the coloring of bombastic claims.

Available information indicates that there has been an increase in the number of persons seeking free hospital care. When considered in connection with the incomes of American workers,

this increase does not appear to be entirely warranted. It is claimed that hospital insurance schemes will meet the needs of the low income group and will remove them from tax-supported hospitals and the free services of private hospitals. Group hospitalization plans are ostensibly intended for the benefit of population groups on which full hospital fees would prove a hardship. However, it is often stated by the proponents of hospitalization insurance schemes that membership has not yet reached the rural and low income groups. These proponents believe that the premium rate is an obstacle in many cases. While the cost for a single membership is usually about \$9, the annual cost for a family may be as high as \$40. The relief from this dilemma will require serious study. A hospital routing plan, based on a central admitting bureau which determines the ability of patients to pay hospital bills, is a more direct solution to the problem of the abuse of free hospital services.

Group hospitalization plans at best will serve but a small percentage of the eligible population. They make no provision for the care of the indigent, those above certain age limits or those otherwise excluded, and only slight provision for the chronically sick and the unemployed. They must not, therefore, be permitted to develop features antagonistic to the private practice of medicine, which is maintained to provide for the medical needs of all persons regardless of income status, nature of illness, age, membership in some social group, or any other such artificial classification.

The Bureau of Medical Economics has consistently maintained that the decision as to whether or not a group hospitalization plan is essential must rest primarily with the medical profession and the hospital officials of the local community. Furthermore, if it is decided that a group hospitalization plan is necessary to complete or to augment the existing hospital facilities of the community, certain principles of organization and administration should be observed. The following principles are suggested in the interest of fairness, efficiency and greater security, and in the event that hospital insurance is deemed necessary:

1. The plan of organization should conform to state statutes and case law. The majority of the governing body of the hospital insurance plan should be chosen from among members of official hospital groups and members of medical societies. Great care should be taken to assure the nonprofit character of these new ventures.

2. The plan should include all reputable hospitals. The qualifications of the participating hospitals should be closely supervised. Member hospitals should be limited to those on the Hospital Register of the American Medical Association or to those approved by the state departments of public health or other state agencies in those states in which there is approval, registration or licensing of hospitals.

3. The medical profession should have a voice in the organization and administration of the plan. Since hospitals were founded to serve as facilitating means to the practice of medicine, the medical profession must concern itself intimately with plans likely to affect the relations of hospitals to physicians.

4. The subscriber's contract should exclude all medical services—contract provisions should be limited exclusively to hospital facilities. If hospital service is limited to include only hospital room accommodations such as bed, board, operating room, medicines, surgical dressings and general nursing care, the distinction between hospital service and medical service will be clear.

5. The plan should be operated on an insurance accounting basis with due consideration for earned and unearned premiums, administrative costs and reserves for contingencies and unanticipated losses. Supervision by state insurance departments has been advantageous for both the buyer and the seller of insurance contracts. Laws permitting the formation of hospital service corporations should not remove the benefits of such supervision nor violate the principles enumerated.

6. There should be an upper income limit for subscribers. If group hospitalization plans are designed to aid persons with limited means to secure hospital services, they should render such service at less than regular rates. If no consideration in rates is made for persons with limited means, group hospitalization plans lose their altruistic purpose and there may be little justification for an income limit.

7. There should be no commercial or high pressure salesmanship or exorbitant or misleading advertising to secure subscribers. Such tactics are contrary to medical and hospital ethics and are against sound public policy.

8. There should be no diversion of funds to individuals or corporations seeking to secure subscribers for a profit. The moment hospital insurance loses their traditional character as institutions of charity and humanitarianism the entire voluntary hospital system will break down.

9. Group hospitalization plans should not be utilized primarily or chiefly as means to increase bed occupancy or to liquidate hospital indebtedness. Such plans, if they are necessary, should place emphasis on public welfare and not on hospital finances.

10. Group hospitalization plans should not be considered a panacea for the economic ills of hospitals. They can serve only a small portion of those persons needing hospital services. Hospitals must continue to develop efficient methods of administration and service independent of any insurance method of selling their accommodations.

Notwithstanding the efforts of medical societies and this bureau, as well as the reports of the Judicial Council and the action of the House of Delegates on group hospitalization at the Kansas City session to develop principles for the guidance of the group hospitalization movement, few, if any, of the plans exclude all medical services from their group hospitalization contracts. The extent to which medical services are included in the hospital service contracts is shown in the report of the Bureau.

For many years there have been serious discussions among physicians and hospital administrators concerning the most equitable arrangements for anesthesia, clinical pathology, radiology and other special medical services in hospitals. These are fields in which hospitals and the medical profession must seek and apply adjustments. Just now, when a more satisfactory relationship in some of these fields seems to be in view, group hospitalization tends to accentuate and perpetuate the very conditions which the medical profession and some hospital authorities have sought to improve. Hospital insurance plans tend to force the continuation of undesirable practices and relations between physicians and hospitals.

These prepayment plans for hospital care show a distinct tendency to place hospitals themselves in the field of medical practice. If group hospitalization organizations become sufficiently strong in membership support, and if they pursue the announced policy of liberalizing benefits, the future course of such plans seems clear. Either they will offer a longer period of hospital stay, or they will include more medical services. It is only occasionally that patients need more than the twenty-one days of hospitalization now offered. At the time of hospitalization every patient needs one or more medical services. Who can deny that the directors of these schemes may propose to include additional medical services to make their contracts more salable? There is only a remote possibility that a future development in these plans will be a decrease in subscription rates.

If group hospitalization schemes were to confine their benefits strictly to hospital facilities, the movement would avoid most of the undesirable disturbances in the field of medical practice without impairing the value of the plan as a method of assisting persons with limited incomes to receive hospital services. In this connection there is need for a thorough understanding on the part of the organizers and administrators of group hospitalization plans as to what constitutes medical services.

Because of the several reasons outlined, group hospitalization, instead of preventing the advent of some form of sickness insurance, is more likely to be the first step toward the opening of hospitals for all persons in the community and then a system of state managed medicine. The group hospitalization movement is clearly one of the major issues demanding action by the medical profession if the future of medical practice is to be maintained on a basis which guarantees that the welfare of the sick individual is the first consideration.

ECONOMICS AND THE ETHICS OF MEDICINE

In June 1936 the Bureau published a discussion of the relation between economics and the Principles of Medical Ethics. The publication contains five chapters:

- Chapter I. The Hippocratic Oath.
- Chapter II. The Principles of Ethics of the American Medical Association.
- Chapter III. The Relation of Ethics to Economics.
- Chapter IV. The Development of Medical Ethics.
- Chapter V. The Medical Group.

Many of the principles of medical ethics contain economic implications. This discussion is intended as much for the medical student as for the practicing physician. It is hoped that some explanation of these principles may serve to emphasize that many of the problems which are often thought to be economic are in reality ethical.

CARE AND RELIEF OF PHYSICIANS AND THEIR DEPENDENTS

The Bureau has prepared a synopsis of the existing state or county medical society pension or relief plans for indigent physicians. This summary appeared in the November BULLETIN. In this article there is also a discussion of the organizations which have been created in foreign countries for the care and relief of physicians and their dependents.

The conclusions drawn from the Bureau's study of this subject are:

1. From all present indications of actual need, it would be impracticable to organize a national "Benevolent Society" or "Relief Fund" under the auspices of the American Medical Association. State and county medical societies have often indicated that there are but few instances of indigence. A report of the Works Progress Administration shows that of the 82,000 professional and technical workers on relief 675 were "physicians, surgeons and dentists." This number may be compared with 20,000 teachers, 15,000 musicians and music teachers, 6,800 nurses, 6,200 engineers, 4,500 draftsmen, 3,800 actors, 3,000 clergymen and religious workers, 2,900 artists, 800 chemists, assayists and metallurgists, and 1,400 reporters and editors. Until it can be definitely shown that there is now a real need for a national relief fund, the state and county medical societies should be encouraged to develop benevolent activities according to local requirements. Not until the burden of benevolence tends to become too large for local resources should a national fund be established.

2. Few of the proposed projects for the establishment of new homes or clubs for aged physicians deserve encouragement. While the philanthropic motive behind such movements is commendable, it should not be permitted to confuse the fact that these plans have been repeatedly disavowed as an uneconomic and unsatisfactory solution of the problem of caring for aged physicians. Homes now in existence can satisfy the demands for facilities to accommodate aged physicians desiring or needing institutional care. Certainly it does not appear to be within the province of the American Medical Association to establish new homes.

3. Commercial insurance companies have so improved their contracts and rates that it is questionable whether any mutual assessment association to be newly organized could offer a similar contract with the same guaranty of good management, resources and services. It would not now be advisable for the American Medical Association to enter into the insurance business.

4. The formation of an agency to secure more advantageous insurance contracts and reductions in premiums—in effect, a wholesale insurance buying arrangement—which is said to operate effectively for several European medical associations, might, in time, become adaptable to the circumstances in the United States. Through its Bureau of Medical Economics, the American Medical Association has given a great deal of service on all matters pertaining to insurance. The advisability of creating an intermediary insurance purchasing agency for physicians would require careful study.

RURAL MEDICAL SERVICE

Are rural sections of the United States suffering from a lack of available medical service? If so, where are they and what are the conditions responsible for such deficiencies?

The Bureau of Medical Economics, with the assistance of the state medical associations, has undertaken an investigation to obtain the facts needed to answer these questions. The first step was to locate the counties with the largest population per physician. While making all possible allowance for the fact that a county is by no means a social or medical unit, it is the unit of nearly all available statistical compilations. It is also recognized that the ratio of population to physician is far from being an exact measure of available medical services. The most that can be claimed for such a ratio is that it is an indication of the extent to which such services are available.

Even a superficial examination of the medical writings of the last 100 years will indicate that there has scarcely been a time or a place, in Western nations at least, when there have not been complaints of a lack of medical service in rural districts. Moreover, the extent and vociferousness of these complaints seem to bear no particular relation to available medical facilities, unless, as sometimes appears probable, the complaints become more vocal as the facilities increase.

In 1918 there were 123 counties in the United States with more than 2,000 persons per physician. This number had increased to 297 counties located in thirty states in 1934 and had dropped to 233 in 1936. According to the American Medical Directories, there were sixteen counties in 1934 and nineteen counties in 1936 having no physicians. The sparse population of these counties is apparent. Seven of the counties in 1934 and ten of the counties in 1936 were included in the jurisdiction of county medical societies.

The detailed analysis of the economic conditions in each of the states having four or more counties with 2,000 persons per physician has appeared in THE JOURNAL and will soon be available in reprint form.

*Counties Having No Physicians, According to American Medical Association Directories**

State	1934				1936			
	Num- ber of Coun- ties	Land Area in Square Miles†	Popu- la- tion†	Pop. per Sq. Mile†	Num- ber of Coun- ties	Land Area in Square Miles†	Popu- la- tion†	Pop. per Sq. Mile†
California.....	1	776	241	0.3	1	776	241	0.3
Colorado.....	1	971	449	0.5	1	1,030	1,412	1.4
Colorado.....	..	...	...	...	1	971	449	0.5
Idaho.....	..	...	...	...	1	7,956	4,108	0.5
Nebraska.....	1	721	1,344	1.9	1	721	1,344	1.9
Nebraska.....	1	742	1,676	2.3	1	742	1,676	2.3
Nebraska.....	1	576	1,818	3.2	1	576	1,818	3.2
Nebraska.....	..	...	...	...	1	2,055	4,667	2.3
North Dakota.....	1	1,168	3,140	2.7	1	720	4,262	5.9
North Dakota.....	1	720	4,262	5.9	1	1,223	4,150	3.4
North Dakota.....	1	1,223	4,150	3.4	..	...	...	...
South Dakota.....	1	530	80	0.2	1	530	80	0.2
South Dakota.....	1	2,682	3,589	1.3	1	2,682	3,589	1.3
Texas.....	1	895	1,505	1.7	1	895	1,505	1.7
Texas.....	1	1,835	701	0.5	1	866	1,263	1.5
Texas.....	1	867	1,193	1.4	1	1,335	701	0.5
Texas.....	1	753	195	0.3	1	867	1,193	1.4
Texas.....	1	879	1,263	1.4	1	753	195	0.3
Texas.....	..	...	...	...	1	879	1,263	1.4
Utah.....	1	850	411	0.5	1	850	411	0.5
Total.....	16	15,658	26,017	1.7	10	26,427	34,322	1.3

* 1934 and 1936 American Medical Directory.

† U. S. Dept. of Commerce. Fifteenth Census of the United States, 1930.

Measures that may be helpful in relieving an apparent shortage of medical facilities in one community may be inappropriate for another. Any relief must be based on a careful evaluation of many local factors. Some of these factors are:

- Density of population.
- Productive characteristics of the area.
- Annual spendable income per capita.
- Distance to surrounding medical facilities.
- Characteristics of terrain.
- Transportation and communication facilities.
- Degree to which the local population appreciates the need for and value of good medical care.
- Actual amount of money necessary to maintain good medical facilities.
- Extent to which the community is not only able but also willing to support medical accommodations.

It is generally understood among physicians that about 85 per cent of all illnesses can be managed safely and satisfactorily in the home. About 15 per cent of all illnesses are sufficiently serious or complicated to warrant hospital care, if available, both for the welfare of the patient and for the easier application of modern methods of diagnosis and treatment that are afforded the attending physician.

Complaints have come from some rural organizations concerning the mileage charge in certain sections of the country. Conditions affecting transportation differ so widely that the application of a universal rule concerning mileage may be impossible. This, however, is a question for study by state and county medical societies within their jurisdiction. It is possible that some adjustment of fees for certain rural areas might do much to relieve the problem of rural medical service.

Various methods of providing medical facilities for rural districts have been proposed; some have been tried. Some have advocated that the physician be guaranteed a specified income. Such plans, in those places in the United States where they have been used, have survived for only a short time. Small hospitals for rural areas are of no value unless competent physicians are available to provide good service. Areas with sparse population could not support a hospital or a physician.

This subject deserves further careful study.

COOPERATIVES, RESETTLEMENT PLANS AND OTHER NEW FORMS OF MEDICAL PRACTICE

Requests are coming to the Bureau for information concerning the attitude of the American Medical Association toward some of the new forms of medical practice now being proposed

in different sections of the United States. The Bureau has confined its activities to the collection of data pertaining to medical economics, the criticism of methods and plans used in the practice of medicine, and the formulation of principles that should govern in good medical practice. Although the Bureau has not yet received documents descriptive of the exact nature and scope of all these new proposals, it is anxious to secure complete information concerning any new movement affecting the practice of medicine.

It appears that there is a steady increase in the number of plans seeking to arrange medical services for those with low incomes. These are now taking the form of benefit associations, cooperatives and corporations. The methods of financial support of these organizations are by membership dues or, in the case of the Resettlement Administration, by loans to clients. Payment for medical services is either on the basis of a prearranged fee schedule or by a fixed salary.

The Rural Resettlement Administration has developed plans for medical care which have been submitted to several state medical societies by the medical officer representing the administration. Two of these plans are given here as presented by the Rural Resettlement Administration.

TENTATIVE PLAN

A proposal for emergency medical care for the 32,000 (approximate) destitute or low-income farm families in Missouri who are Resettlement Administration clients is outlined herewith. The final plan agreed on is to be approved and recommended by the Missouri State Medical Association.

1. Each county medical society will appoint a committee to make contact with and work in cooperation with the county rehabilitation supervisors. This committee from the county medical society may review the list of low income farm families who are the responsibility of the Resettlement Administration in order to obtain information as to who constitute the Resettlement Administration clients in a county.
2. Rural rehabilitation supervisors will canvass their clients and have each family choose the physician who is to be used in case of illness.
3. The Resettlement Administration clients in each county will organize a County Farmer's Aid Association, each member of which will apply to the Resettlement Administration for a loan of \$25 to provide emergency medical care for one year. The County Farmers' Aid Association will elect a treasurer, who will be bonded. This treasurer may be any responsible person in the community. When the loan of \$25 is received by each family, these funds will be placed by the treasurer, to the credit of the County Farmers' Aid Association, in a local bank. Only destitute and low income farm families who are the responsibility of the Resettlement Administration will be eligible for membership in the County Farmer's Aid Association.
4. Physicians in the county who accept the plan will render home and office medical care, including antepartum and obstetric care and ordinary drugs, to Resettlement Administration clients as required. It is expected that the minimum service will be rendered that is consistent with the welfare of the patient. The bill for such services will be rendered to and paid by the treasurer of the County Farmers' Aid Association.
5. A special schedule of fees for Resettlement Administration clients will be agreed on.
6. Special arrangements will be required for hospitalization and surgical operations and shall not be construed to be a part of this plan. A special fee schedule will be agreed on for this service.
7. The advisory committee of the county medical society, on request of the treasurer of the county farmers' aid association, will review such bills for medical care as may seem necessary.
8. This plan will be effective for one year.

TYPES OF ACCEPTABLE COMMUNITY AND COOPERATIVE SERVICES
March 27, 1936
Missco Community Cooperative Medical Association

One hundred and twelve rural rehabilitation clients have organized the Missco Community Cooperative Medical Association in order to provide services of a physician and medicine for themselves on an annual basis.

Each client obtained an individual loan of \$30 from the Resettlement Administration to participate in the service.

The president, vice president and secretary-treasurer of the association comprise the board of directors, who retain a competent physician to provide medical service; \$3,300 for physician's salary and medicine is authorized.

Membership privileges include:

- (a) An annual physical examination.
- (b) Such medical care in home and office as is usually given by a general practitioner, including preventive service for the most prevalent and common diseases (diphtheria, smallpox, typhoid fever, scarlet fever).

- (c) Medicine for the treatment of ordinary diseases in an amount not to exceed \$10 in value for each family. The physician will be reimbursed if he furnished this, or the secretary-treasurer may purchase medicine.
- (d) An additional \$5 fee shall be required for each obstetric case.
- (e) Excessive night calls shall not be required.
- (f) In case of a dispute between the doctor and a member, the county supervisor shall arbitrate.

Loans made for participation in the medical service are repaid from income as shown on regular farm and home plans. All client-members live within a six mile radius.

SUGGESTIONS

This division has made the following suggestions to the regional director with respect to this application for guidance in the further development of this type of project:

1. We are also of the opinion that, instead of the flat amount (such as \$30 per family regardless of the size of the family) there should be a minimum charge of not less than \$1.50 per month per family, and a maximum charge of not to exceed \$5 per month per family, with a small fee for additional members over and above a specified number. A family of say three or four members should not be charged the same as a family of ten or twelve. The additional fee might be as small as 15 cents or 20 cents or as high as 50 cents for each individual member, but in no event should the total amount charged to each family exceed the maximum referred to.

2. There may be some instances in which the medical associations would be justified in contracting with a group of doctors, in case they are available, in order that members of the association will have some choice in the selection of the doctor. There may be times when one doctor is unable to serve the needs of the entire group. In such instance, it would be all the more important to be able to employ the services of several doctors.

3. The contract with the doctor, or doctors, should specify clearly the amount paid either monthly or annually.

Some other plans of the Rural Resettlement Administration involve elaborate, complicated and exceedingly broad articles of incorporation which are vague on several important points, as to those who may claim benefits, the period over which the corporation is to operate, the right of clients to choose their own physicians and the profit or nonprofit nature of the organization. The attention of the administration has been called to these and other points which need to be clarified.

Some confusion has been created by designating the Resettlement medical plans as "cooperatives." There is practically no resemblance between these schemes and the cooperatives which are organized on the principles of the Rochdale cooperative plan.

Greater confusion is likely to result from the proposals that are now emanating from the Bureau of Cooperative Medicine. Of the six plans offered by the Bureau of Cooperative Medicine, one is given here:

THE A PLAN

This plan provides complete medical service and hospitalization from the beginning and does not involve partial medical service set-ups.

Money is raised to subsidize the setting up of a Central Medical Group, including equipment, hospital arrangements and guaranty of salary for the Central Specialist Group for three years (from one donor or many makes no difference).

The money raised to provide the subsidy is now returned to the donor and replaced by the aggregate capital funds raised by the sale of bonds. (Initiation fee certificate.)

Interest in the subject is continued by a purely educational program conducted from the Bureau, and when the central specialist set-up is ready, then the "co-ops" are admitted so far as is possible using their own general practitioners in their localities and the already trained specialists at the Central Medical Group.

This Central Medical Group remains as a training school for professional and lay personnel, who will soon be needed to service additional "co-ops."

The Central Medical Group consists of the following:

A centrally located medical center with all the apparatus necessary to make accurate diagnoses.

The offices and consulting rooms of the various specialists as well as a library and a meeting room for consultations, discussions, the reading of papers, and other purposes.

A completely equipped diagnostic laboratory.

A completely equipped x-ray department ready for both diagnosis and high voltage therapy. These facilities will be available to the hospital, so that they need not be duplicated.

Adequate ambulance equipment to transport all hospital cases to the hospital (to be discussed).

A staff of full-time doctors (male and female), who will represent the various phases of medical practice in such a manner that each is practicing that part of medicine for which he is best fitted. Salaries to range from \$350 to \$1,500 a month net.

Hospital facilities sufficient for the ample and unrestricted hospitalization necessary for a membership of at least 50,000.

Administrative officers and offices.

Each unit should have about 50,000 members (Ross-Loos experience).

About fifty-five doctors to service this group.

All physicians are on a full-time salary basis.

Each family is considered to be husband, wife and two unmarried, dependent children under the age of 18 domiciled in the household.

The original stake for each family will be \$50, of which \$20 will be payable on application and \$15 at the beginning of the next year, and the balance of \$15 at the beginning of the second year. In the event that hospitalization is necessary, the entire balance due must be paid in.

The monthly dues will be graded. The first member of the family will pay \$3, the second \$2.75, and any of the unmarried dependents (children under 18) will pay \$1.75. Since the average family consists of husband, wife and two children, their dues will be \$9.25 per month, an average of \$2.50 per person.

On an individual basis, the monthly dues will be \$2.50 per person.

Average stake \$12.50 per unit of membership.

Individually (unmarried adults), admission is at \$50 stake and \$3 per month.

Family incomes range from \$2,500 to \$4,000.

Considered individually, the income group would be between \$800 and \$1,200 a year.

Certain people will be willing to make sacrifices in order to join these "co-ops" just as truly as certain will make condescensions.

As soon as enough experience has been accumulated, the expense could be lowered by using less expensive locations or buildings but not cheaper medical skill.

The availability of this type of plan could be increased by allowing the government or employer to assist the low income groups to pay dues—paying part of their dues from public or industrial funds. These low income "co-ops" could serve as training grounds for younger physicians.

Test groups should be put into operation in three different locations: a metropolitan area with its cosmopolitan population, a set of people under similar employment regulations such as government employees, city employees, Consolidated Edison, and a rural area.

The payment of a nominal interest on the original stake might prove a good feature and could be determined by the L. B. M.

This proposal would introduce a type of medical practice only slightly different from club practice and voluntary insurance. There is nothing essentially "cooperative" about it. It seems safe to assume that the introduction of such a scheme would tend to encourage the spread of other schemes strikingly similar to the "club practice" which filled England prior to 1911.

Wherever the cooperatives have used their financial resources and their organization machinery to build up club medical practice, the resulting tendency has been to supply their members with an inferior form of contract medical service. This has been true in this country in the few instances in which attempts at such "cooperative" organization have been made. Any cooperative that would follow a similar policy with regard to distribution of food would be at once condemned by a sincere cooperator. Such proposals gain a hearing only because cooperators are no more able than the rest of the lay public to judge of the quality of medical service.

The creation of new methods of distributing or providing medical services does not call for new and different principles of administration. The element of greatest importance both to the sick person and to the medical profession under any plan is the quality of service. In the principles of medical ethics, the medical profession has a means of safeguarding quality if there is adherence to these principles. Principles of medical economics are being formulated as rapidly as possible. However, under no circumstances must the economic phase of medicine be permitted to assume the primary position that has always been held by medical ethics.

The House of Delegates at the Cleveland session in 1934, and again at the Special Session in February 1935, stated its position with respect to new methods of organizing medical services. These actions still stand as the policy of the American Medical Association. It is of paramount importance for the profession to understand the implications in many of these new proposals, involving as they do the future practice of medicine. Specifically, the purpose and scope of any new plan should be clearly stated. If a plan is proposed for those with low incomes, a limit should be placed on those who may participate.

The medical profession holds that members of "cooperatives" and clients of the Federal Resettlement Administration, no less than other citizens, should be allowed the freedom to choose their own physicians; that there should be a minimum of administrative machinery, and that "bidding" for the care of the sick is inconsistent with the practice of ethical medicine. Some medical societies have created machinery for adjusting complaints and dissatisfaction over medical service and charges;

other societies might well consider the advisability of creating similar machinery. Many plans now being formulated may easily be changed to provide for a staff of salaried physicians and thus will deny to members the freedom to choose their own medical advisers.

Regimentation, regulation, red tape, limitation of choice, compensation by salary, and administration by nonmedical personnel are characteristics of systems of state managed medicine. These characteristics may not all appear at once, but each new proposal should be examined with great care to detect tendencies, implications and hidden phrases which may have grave effects on the future of medicine.

The obligation to treat the sick carries with it an obligation to maintain and improve the scientific methods used in medicine and also to resist those tendencies and influences which would destroy the quality of medical care and ultimately the institution of scientific medicine.

The House of Delegates of the American Medical Association has established certain principles for the guidance of medical societies when they undertake to study and evaluate such matters.

ORGANIZATION OF MEDICAL SERVICES

The Bureau undertook in 1936 to secure from a few medical societies a description of their complete program of activities. A prepared account of the several phases of the work of the county medical societies studied was submitted to each secretary for corrections and additions or deletions. The published descriptions of the activities of these county medical societies appeared in issues of the AMERICAN MEDICAL ASSOCIATION BULLETIN and are now available in reprint form.

It is not claimed that these descriptions represent a typical county medical society program but they do show that it is possible for many medical societies to develop a balanced and comprehensive program of activities beneficial alike to the public and to the medical profession. Some of these activities are: education on the importance of preventive medicine; improvement in arrangements for the care of the indigent sick; cooperation with boards of health and education and with hospitals in the proper allocation of responsibilities and the correction of alleged abuses; organization and coordination of available facilities for low income groups and the provision of additional facilities when needed; conduct of graduate education for practicing physicians; operation of credit and collection bureaus and physicians' telephone exchanges; maintenance of speakers' bureaus, and efforts to protect the public and professional interests in proposed legislation.

All these and other activities require the constant application of the Principles of Medical Ethics and careful study of details in order that methods of medical practice may be made to conform to good public policy.

Summary

It appears that a large percentage of colleges and universities are actually engaged in the practice of medicine. The health education program, in most institutions, seems to have been overshadowed and neglected because of the greater attention given to the clinical and curative phases of student health services. A few educational institutions are confining the activities of their student health services to health supervision and health education; these institutions are utilizing community medical facilities when needed. It seems likely that the health education objectives of student health services will be more readily achieved by establishing a harmonious cooperation between educational institutions and the medical profession. State and county medical societies should welcome the opportunity to assist colleges and universities in arranging an appropriate medical service.

Group hospitalization, as a method of prepayment for hospital care, is being actively promoted throughout many parts of the United States. Actuarial data on which to base sound premium rates are not available. Benefits under these schemes are not limited to low income groups. These schemes often include those who are able to pay fair hospital charges and they have thus far failed to reach a large proportion of the rural

and low income population. Most contracts for hospital facilities include some medical services. Hospital insurance schemes tend to accentuate and perpetuate the very conditions which the medical profession and hospital authorities have sought to improve. There appears to be danger that these schemes may include an increasing amount of medical service and thereby place hospitals in the actual practice of medicine.

The hospitalization insurance movement is one of the major issues before the medical profession. Some action is needed to safeguard the security of the plans and to guarantee that the welfare of the sick individual continue to be the primary consideration.

Many problems that confront medicine today are more ethical than economic. Proposals in the field of medical economics should be tested by the principles of medical ethics.

Present evidence seems to indicate that it would be impracticable to organize a national "Benevolent Society" or "Relief Fund" for indigent physicians under the auspices of the American Medical Association. Few of the proposed projects for the establishment of new homes or clubs for aged physicians deserve encouragement. Institutions now in existence can satisfy the demands for facilities to accommodate aged physicians who need or desire institutional care. It seems inadvisable for the American Medical Association to enter the insurance business, although the formation of an agency to secure more advantageous insurance contracts and reduction in premiums might in time become advisable. Such a venture would require very careful preliminary study.

There has scarcely been a time or a place in Western nations during the last century when there have not been complaints of a lack of medical service in rural districts. Reports from sources outside the medical profession of the number of counties having no physicians have been greatly exaggerated. There were only nineteen such counties in 1936. There were, in the same year, 233 counties having a population of 2,000 or more persons per physician. It is recognized that the ratio of population to physician is far from being an exact measure of available medical services. Relief of the shortage of medical facilities for rural communities requires careful study.

The number of new proposals for the organization and distribution of medical services to special population groups is rapidly increasing. These new schemes are taking the form of corporations, mutual benefit associations and cooperatives. They appear to give primary consideration to the methods of payment for medical services. The quality of service and the medical ethics involved are given subordinate consideration, if they are mentioned at all.

There appears to be a tendency in these schemes to favor the employment of salaried physicians and thus to limit freedom of choice. In some instances the cooperation of state and county medical societies has been sought. This appears to be a field in which medical societies should exert their best efforts to maintain high quality of ethical medical service to all sections of the population at fair fees.

Information from several county medical societies indicates that it is possible for these societies to develop and maintain a balanced and comprehensive program of activities beneficial alike to the public and to the medical profession. Such programs should usually conform to community requirements and to good public policy.

Bureau of Health and Public Instruction

As a result of the enlargement and alteration of the Association's building, more commodious and better appointed quarters have been provided for the Bureau of Health and Public Instruction. With improved facilities and enlargement of the official staff, it has been made possible for the Bureau to handle a much larger amount of work and to do its work more efficiently.

CORRESPONDENCE

More than 20,000 written communications were received during the year. The number of letters received as a result of the radio broadcasting program of the Association was more than six times the number of similar communications received in the previous year. There also was a large increase in the number of letters received from laymen asking for specific information about matters pertaining to health and to the prevention of disease. Such growth in the work of the Bureau involves a consideration of what may be expected in the future. The better the service rendered, the greater the demands made on the Bureau for providing information. It is confidently expected that the continuation of the radio broadcasting program will inevitably produce a constantly increasing number of inquiries from the lay public.

RADIO PROGRAM

The weekly dramatized radio broadcasting program, initiated in October 1935, was continued without interruption until June 1936. In October 1936 the weekly programs were resumed and have been given each week with only one interruption, when the broadcasting period was relinquished in favor of a broadcast by the President of the United States. The total number of dramatized programs broadcast up to the time of the preparation of this report is forty-four over the National Broadcasting Company network and one over the Columbia Broadcasting System. Additional broadcasts over the National Broadcasting Company facilities and over the Columbia Broadcasting System were made as a part of a special program at the time of the annual session of the Association held in Kansas City in May 1936.

In view of the special nature of the dramatized presentations and the large amount of favorable attention which the broadcasting program attracted in its first season, the closest possible attention has been given to the difficult problem of maintaining the quality of this program. Officials of the National Broadcasting Company have indicated that there is no falling off in the attraction value of the dramatized presentations. Important publications have commented most favorably, and the president of the Radio Corporation of America has included the Association's dramatized radio broadcast as one of the six outstanding educational programs on the networks of the National Broadcasting Company.

The Bureau has continued the maintenance of the radio library, intended to be used for aiding component and constituent associations that may desire to conduct broadcasting programs. During the year, ninety-four new radio talks were added to the library so that the total number of titles is now 873. The use of this library by state and county medical societies apparently is diminishing, and it is possible that this is to be explained by the evidently increasing popularity of the dramatized presentations of the American Medical Association.

The National Broadcasting Company has contributed in great measure to the success of the educational radio program, and its official representatives have at all times been generous in extending their individual cooperation.

COOPERATION WITH STATE AND COUNTY MEDICAL SOCIETIES
AND OTHER ORGANIZATIONS

The Bureau has continued its cooperation with state and county medical societies and with other organizations by attempting to act as a clearing house for information concerning health and to further cordial relations between the medical profession and organizations of various kinds that have interested themselves in public health matters, including, especially, official health departments. For these purposes the Director of the Bureau has attended conferences with the Joint Committee on Health Problems in Education, the organization of state and territorial health officers with the Children's Bureau of the U. S. Department of Labor, groups of officers of medical societies, the American Public Health Association, the First National Conference on Educational Broadcasting, the National Conference on College Hygiene, the Conference on Venereal Disease Control Work, the General Federation of Women's Clubs Advisory Committee, and other groups.

It may be said, in general, that the attitude of organizations with which cooperative contact has been made has been very

satisfactory. The attitude of officials of the federal government has been friendly and cooperative. It would appear that the maintenance of such contacts already established and the furtherance of additional contacts will be highly desirable and necessary for promoting the interests of the organized medical profession and providing such aid as the profession can give to worthy organizations that are interested in the promotion of the public health. Policies adopted at gatherings of national scope frequently may be expected to percolate very slowly and, perhaps, unsatisfactorily, to the ultimate point where a definite program may be applied in the local community. It will require the exercise of patience and intelligent effort on the part of the medical profession to keep these nationwide programs on a satisfactory plane of sane and sensible operation and to provide the helpful guidance that no group other than the medical profession can offer.

One of the most important conferences pertaining to public health was the Conference on Venereal Disease Control Work called by the Surgeon General of the United States Public Health Service, the details of which were summarized in an editorial that appeared in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Jan. 9, 1937. This conference was well organized and well attended. In its deliberations, full recognition was given to the importance of the general practitioner of medicine in any plan designed to effect better control of venereal diseases.

HYGEIA CLIPPING LOAN COLLECTIONS

The loan service of HYGEIA clippings, begun experimentally in 1932, was developed to the degree originally planned and intended for the first time in 1936. Collections of clippings are, on request, lent to physicians without charge. Physicians who avail themselves of the use of this material are expected to return the collections within ten days and to pay return postage. Physicians in thirty-eight states have availed themselves of this service.

PROTECTION FOR MEDICAL RESEARCH

This bureau has attempted to cooperate with the Committee for the Protection of Medical Research and, in an effort to be helpful in this direction, has distributed among the students of medical schools more than 5,000 copies of the pamphlet entitled "Animals in Research."

COOPERATION WITH LAY ORGANIZATIONS

The Director of the Bureau of Health and Public Instruction has served as a member of official committees of a number of important lay organizations of national scope.

The National Congress of Parents and Teachers has continued its efforts to have its Summer Round-Up conducted on a basis satisfactory to the medical profession and has placed special emphasis on the desirability of having examinations of children made by the family physician rather than through assembled group clinics. More emphasis has been placed on proper compensation for physicians' services in connection with the Summer Round-Up examinations. Through the Bureau, the American Medical Association has continued to provide a certain number of the examination forms for use in the Summer Round-Up.

The General Federation of Women's Clubs, through its Department of Health and Welfare, has continued its program and, during 1936, promoted a program of education of its own members with respect to maternal hygiene and other important subjects. The federation, like the National Congress of Parents and Teachers, shows a very definite desire to cooperate as fully as possible with the medical profession.

The National Committee for Boys' and Girls' Club Work is carrying on in individual communities programs of constructive character in health education and health promotion.

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association has continued its activities, as indicated in previous reports and in special reports submitted to the Board of Trustees of the Association.

It seems perfectly evident that in the future the importance of preventive medicine will be stressed more than ever before, and it is highly desirable that the closest possible cooperation

should exist between the organized medical profession, official departments of health and special organizations whose purpose is to promote the betterment of the general health.

FIELD WORK

During the year the Director and Assistant Director of the Bureau appeared as participants in the programs of medical societies in various parts of the United States and also appeared before a number of meetings arranged by lay organizations. The total number of addresses delivered was ninety-two. Numerous invitations to appear at meetings arranged by medical societies or under the auspices of lay groups had to be declined because of the pressure of other official duties.

OTHER ACTIVITIES

The Bureau has continued its cooperation with other departments of the Association and has prepared a large amount of material for publication in *THE JOURNAL* and in other publications, including *HYGELA*. In cooperation with the Bureau of Exhibits, exhibit material was prepared for the Association's exhibits at the California-Pacific International Exposition, the Texas Centennial Exposition, the meeting of the American Public Health Association and the annual session of the American Medical Association at Kansas City.

An important part of the work of the Bureau of Health and Public Instruction has to do with the printing and distribution of pamphlets of an educational nature. Seventeen new pamphlets were added to the list of Bureau publications in 1936, while two of the older pamphlets were revised and five discontinued.

Summary

Better and more commodious quarters have been provided and the activities of the Bureau of Health and Public Instruction have been expanded.

The dramatized radio broadcasting programs initiated in 1935 have been continued and have attracted widespread interest. Ninety-four new "radio talks" have been added to the radio library maintained for the use of state and county societies.

The Bureau has attempted to cooperate as fully as possible with component and constituent societies and with other worthy organizations. The Director has served as a member of advisory committees of several important lay organizations of national scope.

The Director and his assistant participated in the programs at ninety-two meetings of professional and lay groups during the year.

There was a material increase in correspondence in 1936, many inquiries having come from laymen.

Bureau of Investigation

The Bureau of Investigation continues to receive many requests for information pertaining to the subjects with which the Bureau is concerned. During 1936 approximately 10,000 direct inquiries were received and answered, these inquiries being about equally divided between laymen and physicians. In previous years each of such inquiries generally has contained a single question, but lately many of them ask for information concerning several different matters. Careful attention is given to each item and, in some instances, it is necessary to give much time and effort to secure authentic information on which replies can be properly based.

In addition to inquiries and requests received from individuals, a great many come from newspapers, magazines and radio broadcasting stations, most of them pertaining to advertising offered for publication or for broadcasting. Teachers and students are constantly utilizing the services of the Bureau of Investigation, and there is considerable demand from these sources for pamphlets, posters and educational material.

During the year the Bureau has attempted to be of assistance in a number of instances to the Federal Trade Commission, the Food and Drug Administration, the Post Office Department and the Federal Bureau of Investigation as well as to Better Business Bureaus and law enforcement agencies in various cities.

An entirely new and revised edition of *Nostrums and Quackery and Pseudo-Medicine* was published in December 1936, the revision having been made by Dr. Arthur J. Cramp,

formerly Director of this Bureau. Thirteen articles prepared by the Director of the Bureau appeared in *THE JOURNAL* during the year covered by this report.

The demand made on the Bureau's lantern slide loan service was about equal to that of previous years. This service is utilized most largely by physicians, health officers and educators in connection with lectures dealing with "patent" medicines and medical frauds.

The Director of the Bureau delivered twenty-two addresses during the year, nearly all of them having been presented to lay audiences.

Summary

Approximately 10,000 direct inquiries from laymen and physicians were received and answered by the Bureau in the past year. The Bureau has attempted to be of assistance to various departments of the federal government and to Better Business Bureaus and official agencies of various cities. There has been the usual demand for the publications of the Bureau.

A new edition of *Nostrums and Quackery and Pseudo-Medicine*, completely revised, came from the press in December 1936.

The Director of the Bureau appeared before twenty-two audiences in various states during the year and prepared thirteen articles for publication in *The Journal*.

The material available through the lantern slide loan service of the Bureau continues to be utilized by physicians, health officers and educators.

Bureau of Exhibits

The Bureau of Exhibits is concerned with the administration of the work of the Committee on Scientific Exhibit, which is in charge of the scientific exhibits at annual sessions of the Association, with the preparation, distribution and in some instances the installation of exhibit material shown at meetings of scientific organizations, with the preparation, installation and supervision of exhibit material displayed at conventions and expositions, and with the preparation and distribution of educational exhibits lent for display under the auspices of important semiscientific and lay organizations.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the Kansas City session, while smaller than that at the annual session in the preceding year, entirely filled available space. Because of the lack of room it became necessary to omit some excellent individual exhibits. Considerably more than 200 applications for space in the Scientific Exhibit at Kansas City were received, and 174 of them were accepted. Two special exhibits, made possible through appropriations by the Board of Trustees, were also shown at Kansas City.

The Council on Scientific Assembly and the officers of the sections cooperated closely with the Committee on Scientific Exhibit, so that subjects treated in thirty-eight papers read before the sections were dealt with in the exhibits. Each section of the Scientific Assembly appointed a committee to assist the Committee on Scientific Exhibit in obtaining desirable material, and the services of these section representatives were of great value and were gratefully appreciated.

The exhibits at the Kansas City session covered almost the entire field of medicine and some of the allied sciences and attracted genuine interest on the part of physicians in attendance, since the exhibit hall was crowded with visitors throughout the entire session.

The special exhibit on diabetes was made possible through the active assistance of the following committee: Drs. E. P. Joslin, Charles H. Best, Louis I. Dublin, Ralph H. Major, Howard F. Root, Bernard Smith and Russell M. Wilder. This exhibit was splendidly demonstrated and, in addition, thirty-four short talks on the subject of diabetes were made by splendidly qualified physicians in a room appointed for the purpose, where motion pictures on diabetes also were shown at various intervals during the session.

The special exhibit on fractures was prepared under the direction of a committee consisting of Drs. Kellogg Speed, Frank D. Dickson and Walter Estell Lee. This committee had

the assistance of an advisory committee composed of prominent surgeons from various parts of the United States. Fifty-two physicians assisted in the demonstration of the exhibit. Efficient service, through the courtesy of the Surgeon General of the United States Army, Colonel E. M. Blanchard and men from the Station Hospital at Kansas City, was rendered in connection with the fracture exhibit. Without their much appreciated services, the value of this exhibit would have been greatly lessened. The management of St. Luke's Hospital in Kansas City provided nurses and some supplies for the exhibit on fractures, and sincere appreciation for the fine work rendered by the nurses is here acknowledged.

The Committee on Awards, composed of Drs. Ludvig Hektoen, A. H. Aaron, Walter Freeman, Thomas Parran Jr. and W. W. Wasson, gave devoted service in discharging the important task assigned to it, which was made more difficult by reason of the wide scope of the exhibits and the excellence of the material that required their consideration. The members of this committee were on duty continuously for three days. It is evident that their judgment in making awards was beyond criticism, since no word of complaint has been heard.

ASSOCIATION EXHIBITS

Exhibit material depicting the work of the various councils, bureaus and departments of the American Medical Association has been prepared by the Bureau of Exhibits with the cooperation of administrative officers, and this material has been used widely. On more than 100 occasions, exhibits were shown during the year 1936 at the meetings of state and county medical societies and of approved scientific organizations, at public expositions, fairs and conventions. No material has been sent for exhibit purposes in any community except with the approval of the constituent state medical association or component county medical society concerned. At times as many as ten separate exhibits were being shown in widely separated places at the same time. Material prepared by the Bureau was exhibited in twenty-eight states. On several occasions, exhibits have been lent to state medical associations for a period of three weeks to be routed throughout the state on schedules arranged by the officers of the state associations.

Special exhibits were prepared and shown at the request and with the cooperation of the State Medical Association of Texas and the California Medical Association for the Texas Centennial Exposition and the California-Pacific International Exposition. The material shown in these exhibits was seen by great numbers of those in attendance at the expositions.

CENTRAL SCIENTIFIC EXHIBIT

The Central Scientific Exhibit, formerly installed in the Association's own building, was turned over to the Rosenwald Museum of Science and Industry in 1934. This exhibit has not yet been permanently installed because of the unfinished condition of the museum. It is understood that the museum building is now being completed. From time to time the Bureau of Exhibits has been permitted to utilize material which eventually will be permanently installed in the Museum of Science and Industry.

Summary

The Scientific Exhibit at the Kansas City session, while smaller than the exhibit of the preceding year, was of high quality and filled all available space. The Council on Scientific Assembly and the officers of the scientific sections cooperated closely with the Committee on Scientific Exhibit and with the Bureau.

The special exhibits on diabetes and fractures were of high quality and were splendidly demonstrated.

Exhibits were installed at the California-Pacific International Exposition and at the Texas Centennial Exposition.

National Department of Health

At various times within the last twenty-five years, proposals have been advanced that a national department of health with a member of the President's cabinet at its head should be established by the federal government. The American Medical Association, through its House of Delegates, has on more than one occasion expressed approval of the idea that a national

department of health under qualified direction should be established on the ground that the medical and public health activities of the federal government cover such wide scope and are of such great importance to the general welfare that they might well be administered under a central agency, with qualified administrative officers, on the same footing as other major departments of the federal government.

It is only fair to say in this connection that there never has been complete unanimity of opinion among the members of the medical profession in the United States with respect to such proposals, largely because there has been a fear in the minds of some physicians that at some time a national department of health, if established by the federal government, might come to be under the direction or control of administrators not well qualified to direct the medical and public health affairs of the government.

Within recent years there has been discussion at various times of proposals to the effect that a department of social welfare, charged with the administration of governmental functions pertaining to education, to medicine and public health and to social service, should be established. Such proposals, having come to the attention of the Board of Trustees, were given careful study and, at a special meeting Jan. 8, 1937, the following statement pertaining to reorganization of governmental activities was adopted as representing the considered opinion of the Board of Trustees:

"Recognizing that committees of the Senate and of the House of Representatives of the United States government and a special committee appointed by the President are at this time concerning themselves with the reorganization of government activities with a view to greater efficiency and economy, and recognizing also that the President, in his opening address to Congress, indicated that he would shortly present to the Congress recommendations for such reorganization of governmental activities in the executive branches, and recognizing moreover the great desirability that all activities of the federal government having to do with the promotion of health and the prevention of disease might with advantage be consolidated in one department and under one head, the Board of Trustees of the American Medical Association would recommend that such health activities as now exist be so consolidated in a single department which would not, however, be subservient to any charitable, conservatory or other governmental interest. It has been repeatedly said that public health work is the first problem of the state. It is the opinion of the Board of Trustees that health activities of the government, except those concerned with the military establishments, should not be subservient to any other departmental interests. This reorganization and consolidation of medical departments need not, under present circumstances, involve any expansion or extension of governmental health activities but should serve actually to consolidate and thus to eliminate such duplications as exist. It is also the view of the Board of Trustees that the supervision and direction of such medical or health department should be in the hands of a competently trained physician, experienced in executive administration."

Copies of this statement as printed in *THE JOURNAL* were transmitted to the President of the United States and to others in official position in Washington, and the attention of the constituent state medical associations was especially called to the action of the Board. Soon afterward the President, in accordance with a statement made in his opening address to Congress, submitted a special message to Congress on the reorganization of governmental departments and, in this message, recommended the creation of a department of social welfare.

Extension of Medical Service to the Indigent

At the special meeting of the Board of Trustees held Jan. 8, 1937, the following statement pertaining to medical service to the indigent was adopted and later appeared in *THE JOURNAL*:

"In the past, the medical profession has always been willing to give of its utmost for the care of those unable to pay. The available evidence indicates that today throughout the United States the indigent are being given a high quality of medical care and medical service. Nevertheless, the advances of medical science have created situations in which a group of the

population neither wholly indigent nor competent financially find themselves under some circumstances unable to meet the costs of unusual medical procedures. The Board of Trustees of the American Medical Association points out the willingness of the medical profession to do its utmost today, as in the past, to provide adequate medical service for all those unable to pay either in whole or in part. Members of the medical profession, locally and in the various states, are ready and willing to consider with other agencies ways and means of meeting the problems of providing medical service and diagnostic laboratory facilities for all requiring such service and not able to meet the full cost thereof. These are problems for local and state consideration primarily rather than problems of federal responsibility. The willingness of the medical profession to adjust its services so as to provide adequate medical care for all the people does not constitute in any sense of the word an endorsement of health insurance, either voluntary or compulsory, as a means of meeting the situation."

Occupational Diseases and Industrial Medicine

At the Kansas City session a resolution introduced by Dr. A. R. McComas, Missouri, pertaining to the control of occupational diseases was referred to the Reference Committee on Hygiene and Public Health. This committee, after conferences with the sponsor of the resolution and others interested, submitted the following substitute resolutions, which were approved by the House of Delegates:

WHEREAS, In recent years there has developed an increase in recognition of the seriousness of diseases arising from conditions to which workers are exposed from certain occupations; and

WHEREAS, The diagnosis of such diseases is possible only by physicians, and the correction of such conditions as would tend to eliminate the hazards can best be carried out under the guidance and administration of physicians, particularly physicians trained and experienced in industrial hygiene or public health; therefore be it

Resolved, That it be deemed essential that any active efforts by governmental agencies to study and to take measures tending to eliminate occupational diseases should be carried out under the supervision of the city, state or federal departments of health in this country and that this Association do all within its power to assist in this endeavor; and be it further

Resolved, That the Board of Trustees of this Association continue and enlarge its study of industrial hygiene, occupational diseases, and particularly silicosis, to the end that uniform legislation be put into effect in all the states to control these conditions.

The importance of matters to which these resolutions pertain had been previously recognized by the Board of Trustees, and the Bureau of Legal Medicine and Legislation and other official agencies of the Association had given close attention to various developments and organized movements in the general field of industrial medicine. The Section on Dermatology and Syphilology also had interested itself rather extensively in the study of industrial dermatoses and had adopted a report of a special committee of the section asking for the cooperation of the Association in the establishment of "a central clearing house" for the accumulation and recording of information on industrial dermatoses.

These matters were further considered by the Board of Trustees at official meetings held during the year 1936, and March 12, 1937, a conference was held, participated in by the members of the Executive Committee of the Board of Trustees and a group of physicians who were known to have given careful study to the various problems involved in the general field of industrial hygiene. Members of the Association's administrative personnel also were present. The group invited to attend this conference included medical representatives of the United States Public Health Service, of industrial organizations and of insurance companies and physicians engaged in private practice. After a most illuminating discussion, which lasted through the greater part of a whole day and was participated in by all who were present, it was apparent that there was unanimous opinion to the effect that the American Medical Association should establish a council to deal with matters pertaining to the control and prevention of occupational disease and to the administration of medical services established by industrial organizations.

The recommendation of the conference was to the effect that a council to be known as the Council on Industrial Health should be established and maintained by the American Medical Association.

To include in this report a complete statement setting forth the reasons that might be advanced in support of the proposal to establish a Council on Industrial Health would require an undue amount of space, but a complete account of the proceedings of the conference referred to will be placed at the disposal of the House of Delegates or of the Reference Committee to which this matter is referred for consideration.

The Board of Trustees desires to express its appreciation for the suggestions and advice of the group of physicians who attended the conference with the Executive Committee and to acknowledge gratitude to them for their generous and valuable contribution toward the proper consideration of the proposals for the creation of a Council on Industrial Health.

Motion Picture on Syphilis

In view of the widespread interest aroused through the activities of the United States Public Health Service in promoting plans for better control of venereal disease, the Board of Trustees has entered into cooperative arrangements with the United States Public Health Service in the production of a motion picture on syphilis. Plans have been made for the showing of this picture at the Atlantic City session. Copies of the film will be made available for the use of constituent and component medical societies, and it is earnestly hoped that the picture will have great educational value.

Appointment of Committees

In accordance with the provisions of resolutions submitted to the House of Delegates at the Kansas City session, the following committees were appointed by the Board of Trustees, the President or the Speaker of the House of Delegates, as indicated:

Committee to Study Air Conditioning, appointed by the Board of Trustees: Dr. Carey P. McCord, chairman, Detroit; Dr. Emery R. Hayhurst, Columbus, Ohio; Dr. William F. Petersen, Chicago; Dr. H. B. Williams, New York; Prof. C. P. Yaglou, Boston.

Committee on Asphyxia, appointed by the Board of Trustees: Dr. Paluel J. Flagg, Chairman, New York; Dr. John S. Lundy, Rochester, Minn.; Dr. Thomas J. Vischer, Philadelphia.

Committee on Medicolegal Blood Grouping Tests, appointed by the Board of Trustees: Dr. Ludvig Hektoen, chairman, Chicago; Dr. Karl Landsteiner, New York; Dr. Alexander S. Wiener, Brooklyn.

Committee to Study Problems of Motor Vehicle Accidents, appointed by the President: Dr. Herman A. Heise, chairman, Milwaukee; Dr. Burt R. Shurly, Detroit; Dr. Thomas A. McGoldrick, Brooklyn; Dr. C. W. Roberts, Atlanta, Ga.; Dr. Cary T. Grayson, Washington, D. C.

Committee to Propose Amendment to By-Laws Providing for Fitting Recognition to Fellows Rendering Distinguished Service in Science of Medicine, appointed by the Speaker of the House of Delegates: Dr. H. H. Shoulders, chairman, Nashville, Tenn.; Dr. John W. Ames, Denver; Dr. J. D. Brook, Grand Rapids, Mich.; Dr. John F. Hassig, Kansas City, Kan.; Dr. Grant C. Madill, Ogdensburg, N. Y.

The Board of Trustees also appointed during the year a Committee to Determine the Value of X-Ray Film with Paper Base as a Substitute for Film with Gelatin Base, the members of which are as follows: Dr. Hollis E. Potter, chairman, Chicago; Dr. Edward H. Skinner, Kansas City, Mo.; Dr. H. Kennon Dunham, Cincinnati; Dr. J. A. Myers, Minneapolis; Dr. Homer L. Sampson, Trudeau, New York.

Reports of these committees which are not contained in this Report of the Board of Trustees are to be presented to the House of Delegates at the Atlantic City session.

Respectfully submitted.

ROCK SLEYSER, Chairman.
JAMES R. BLOSS.
AUSTIN A. HAYDEN, Secretary.
ARTHUR W. BOOTH.
ALLEN H. BUNCE.
THOMAS S. CULLEN.
RALPH A. FENTON.
ROGER I. LEE.
CHARLES B. WRIGHT.

ADDENDA TO REPORT OF BOARD
OF TRUSTEES

Report of Committee to Study Air Conditioning

Following a resolution, introduced and favorably passed on in the House of Delegates during the Kansas City session in 1936, the Board of Trustees, during a September meeting, created a Committee to Study Air Conditioning. The following persons were appointed on this committee: Dr. Emery R. Hayhurst, Columbus, Ohio; Dr. William F. Petersen, Chicago; Dr. H. B. Williams, New York; Mr. C. P. Yaglou, Boston, and Dr. Carey P. McCord, Detroit. In November 1936 the members of the committee were called together for organization purposes. With all committeemen in attendance, the decision was made to undertake as a first objective the compilation and publication of a series of authoritative articles related to various aspects of air conditioning. The topics to be covered in early publications include "The Physiologic Changes in Human Beings Related to Atmospheric Conditions," "The Pathology of Disease States Attributable to Unsuitable Atmospheric Conditions," "The Field of Application for Artificial Air Conditioning," "The Requirements of Air Conditioning for Hospitals" and "The Clinical Manifestations of Abnormal States Attributable to Unsuitable Air Conditions." For collaboration on the last named topic, a subcommittee was created, consisting of Dr. Henry Hurd, New York; Dr. Howard Hartman, Rochester, Minn.; Dr. Thomas Crowder, Chicago, and Dr. Lee Bristol, New York.

By the time of the Atlantic City session, 1937, three of the committee's reports will have been published or will be ready for publication. These reports respectively will deal with the "Physiologic Requirements of the Human Body as to Air Conditioning," Part I "During Summer Months" and Part II "During Winter Months" and "The Requirements of Hospitals as to Air Conditioning."

For the necessary expenses of this committee, an appropriation of \$2,500 was made by the Board of Trustees. Of this sum, \$700 has been set aside for the compilation of a complete bibliography on air conditioning. This preparation of bibliography material has been undertaken jointly by Professor Yaglou and Dr. Hayhurst, members of the committee, together with Dr. Teleky of Europe, who is bringing together the most important foreign material related to air conditioning.

The items of work now under way will be completed about Dec. 31, 1937.

CAREY P. MCCORD, Chairman.
H. B. WILLIAMS.
E. R. HAYHURST.
W. F. PETERSEN.
C. P. YAGLOU.

Report of the Committee on Asphyxia

THE PROBLEM

Asphyxia as a terminal complication precedes numerous deaths and widespread morbidity from a variety of causes. The question What can be done through the prevention and treatment of asphyxia? has been raised and your committee has been called on to make a short report without the benefit of an exhaustive study of the question.

It is conceded that the problem had best be attacked without haste. In time, the work may be so organized as to permit a reasonable expectancy of success. Of necessity, omissions of more or less important aspects of the problem will occur. We propose, however, to consider these as they appear, limiting our attention at this time to those groups in which the prevention of asphyxia or its treatment offers a problem of sufficient importance to engage the attention and enlist the action of the Trustees of the American Medical Association. The fields which, we believe, need immediate attention are to be noted as follows:

1. Asphyxia neonatorum.
2. Asphyxia from gases, used industrially.
 - (a) Carbon monoxide from illuminating gas and from engine exhaust.
 - (b) Refrigerants such as ammonia, carbon dioxide and dry ice.
 - (c) Fumes in the manufacture of chemicals.
 - (d) Gases associated with the oil industry.
 - (e) Gases in the mining industry.
 - (f) Fumigation for disease; the destruction of rodents on board ship and elsewhere.

3. Asphyxia from gases, in warfare.
4. Asphyxia from drugs, hypnotics, narcotics and sedatives, including acute alcoholism.
5. Asphyxia from disease, such as acute pulmonary conditions, asthma and cardiac decompensation.
6. Asphyxia from developmental and mechanical abnormalities, such as neonatal atelectasis and collapse of the lung.
7. Asphyxia from anesthesia due to overdosage, idiosyncrasy or a failure to meet mechanical obstruction, occurring in relaxation.
8. Asphyxia from drowning (submersion).
9. Asphyxia from flying at high altitudes.
10. Asphyxia from fire fighting (smoke, chemical poisoning).
11. Asphyxia from obstruction by foreign bodies.
 - (a) Material caught in the esophagus or inhaled.
 - (b) Tumors or infections within or without the airway.
12. Asphyxia from electrocution.
13. Asphyxia from strangulation.
14. Asphyxia from allergy.
15. Asphyxia from terminal poliomyelitis.

TREATMENT IS SIMILAR, IRRESPECTIVE OF THE CAUSE

It will immediately be asked Why are so many apparently unrelated entities considered under the head of asphyxia? The reason for so considering the many and various causes of asphyxiation is that, once the predisposing or immediate causes of asphyxiation are removed, the treatment, regardless of the etiology, is always the same. For example, once the electrocuted person is detached from the current causing the accident, the submerged patient is lifted out of the water or the foreign body is removed, the basic problem in each case is reduced to the introduction of oxygen into the respiratory tract, the support of the centers governing respiration, and the stimulation of the circulation.

The brevity of this report precludes the consideration of detailed specific information for the conditions inducing asphyxiation.

METHODS BY WHICH THE PROBLEM OF ASPHYXIATION
MAY BE ATTACKED

Your committee believes that the attack on the problem of asphyxia lies in:

Publicity, by which the attention of the medical profession and the public may be directed to the frequency of death due to asphyxiation.

Organization, to coordinate available information as well as agencies and groups whose normal activity bring them into frequent contact with asphyxial emergencies.

Action, developed as the result of publicity and organization. To stimulate research and to develop a personnel, both lay and medical, capable of carrying out treatment appropriate for the specific case.

The problem of asphyxiation is one that extends outside the immediate confines of the practice of medicine. It impinges directly on industry and the utilities and forms a vital problem in the defense of the nation against gas attacks by a foreign power.

While much valuable work has been done through statistical and other studies conducted by industrial organizations, attacking the problem of carbon monoxide and other specific causes of gas poisoning, and while measures to reduce asphyxiation from drowning have been intensively carried out, notably by the state of Rhode Island, and while first aid measures made available through many police and fire departments leaves little to be desired, your committee is nevertheless impressed by the sporadic and limited nature of such efforts, the lack of publicity attending successful organization, and the entirely unwarranted publicity frequently accompanying unscientific efforts to treat asphyxiation.

Your committee is furthermore impressed by the need of proper organization and supervision of lay groups by a trained and experienced medical personnel. Coordination between the physician and the lay group is often entirely lacking and might well be encouraged. There is not so much a lack of information on the subject of asphyxia as there is a lack of a general knowledge of available technic and equipment. Furthermore, while the specific treatment of any of the stated causes of asphyxiation is well known to those who have done special work on the problem, such treatment developed as a medical routine is by no means the common property of practicing physicians.

The recognition of the problem of asphyxia, implying as it does the loss of at least 50,000 lives a year, brings with it the challenge to reduce these deaths by a carefully worked out program to be carried out over a long period.

PROPOSED COMMITTEE PROGRAM

General.—Your committee believes that it may be of immediate service to the American Medical Association by acting in an advisory and coordinating capacity.

This assistance and coordination may take the form of a continued program, including a method of attack by public education, research, and the postgraduate instruction of physicians.

Arrangements may be made for the preparation of a series of articles in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*

Questions relative to resuscitation apparatus and technic referred to it from the Council on Physical Therapy may well come under its purview.

Your committee suggests the desirability of taking over the work and carrying on the program initiated and maintained for the last four years by the Society for the Prevention of Asphyxial Death. Informative material accumulated by this organization might be filed by the committee for the use of the Association, and contacts with organizations and groups interested in the prevention of asphyxial death may be preserved and developed.

Your committee believes that it may be helpful and awaits instruction and power to act as a coordinating agency in the assembly of information from and the dissemination of information through the various committees and bureaus of the American Medical Association.

Realizing the magnitude of the task presented by the problem of asphyxiation, its presentation and control, your committee feels it necessary to reaffirm its conviction that progress can be made only by a well planned attack over a period of time.

Specific and Immediate Steps.—Of fundamental importance in the preparation of this attack is the assembly of exact information to be used in the listing of asphyxial deaths. There must be established, first of all, a clear cut and generally accepted list of causes of asphyxiation; secondly, these causes must appear in national death returns, where they may be segregated and studied. Such returns may be reported each year and reduced mortality, due to preventative measures, noted. Your committee suggests that such an annual report of vital statistics relative to asphyxiation appear annually in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* at a stated date.

Following the accumulation and analysis of asphyxia statistics, intensive efforts may be made to reduce asphyxiation in the various groups in which it is most prevalent. For example, an early and a concentrated effort might well be made to reduce asphyxia in the new-born, since this type of asphyxiation constitutes more than 60 per cent of the total asphyxia mortality. Synchronously or at a later period, asphyxiation from gases used industrially, from gases in warfare, from submersion, from foreign body obstruction, from anesthesia, from drugs and from disease may each receive attention in the order of importance.

In conclusion, your committee requests the necessary financial assistance to carry out the recommendations reported.

Respectfully submitted.

JOHN S. LUNDY.

THOMAS J. VISCHER.

PALUEL J. FLAGG, Chairman.

Report of the Committee on Scientific Research
for 1936

During the year eighty-two applications received consideration and forty-four awards were made. As heretofore, the new grants support research in various medical fields. Almost without exception, the money has been turned over to the financial officer of the institution in which the grantee works, the understanding being that it would be subject to requisitions by the grantee and that an accurate account of the expenses would be kept. The final or practically final results of work under twenty-six grants have been published or are in the course of publication. The results of the work under thirteen grants prior to 1936 are being prepared for publication. Under thirty-four grants prior to 1936 active work is still in progress; in several cases reports on results have been published. In the case of four grants the files have been closed without any

publication of results. Refunds amounting to \$1,515.20 have been made during the year of unexpended balances from grants.

The committee would recommend that the same appropriation be made for 1937 as for 1936; namely, \$12,550 for grants

Financial Statement for 1936

Balance, Jan. 1, 1936.....	\$ 6,232.31
Appropriation for 1936.....	13,750.00
Refund, grant 231.....	65.76
Refund, grant 314.....	91.53
Refund, grant 327.....	48.63
Refund, grant 336.....	476.94
Refund, grant 351.....	250.00
Refund, grant 353.....	10.78
Refund, grant 360.....	1.30
Refund, grant 376.....	300.00
Refund, grant 383.....	75.10
Refund, grant 384.....	108.00
Refund, grant 385.....	.66
Refund, grant 386.....	19.65
Refund, grant 387.....	20.00
Refund, grant 390.....	8.25
Refund, grant 395.....	2.20
Refund, grant 406.....	.40
Refund, grant 421.....	36.00

\$21,497.51

Grants and Expenses Paid in 1936

Grant 393, Lloyd H. Ziegler and Arthur Knudson..	\$ 165.00
Grant 394, Charles Huggins.....	300.00
Grant 395, Israel S. Kleiner.....	350.00
Grant 396, Vally Menkin.....	600.00
Grant 397, R. F. Hanzal.....	150.00
Grant 398, George A. Emerson.....	175.00
Grant 399, Felix Saunders.....	250.00
Grant 400, John Field.....	200.00
Grant 401, W. T. Dawson.....	200.00
Grant 402, C. H. Thienes and L. T. Samuels.....	500.00
Grant 403, Samuel Soskin.....	750.00
Grant 404, Peter Heinbecker.....	200.00
Grant 405, M. M. Wintrobe.....	200.00
Grant 406, Helen C. Coombs.....	200.00
Grant 407, Ralph I. Dorfman.....	250.00
Grant 408, Gustav J. Martin.....	200.00
Grant 409, Lester R. Dragstedt and G. M. Dack...	600.00
Grant 410, H. E. Eggers.....	200.00
Grant 411, Fae D. Wood.....	125.00
Grant 412, Robert H. Gault and A. C. Ivy.....	400.00
Grant 413, Philip Levine.....	350.00
Grant 414, John R. Murlin.....	600.00
Grant 415, Gordon H. Scott.....	300.00
Grant 416, Jean Broadhurst.....	200.00
Grant 417, Isaac Schour.....	400.00
Grant 418, Frank W. Allen.....	200.00
Grant 419, Carl A. Dragstedt.....	250.00
Grant 420, Arthur Knudson.....	400.00
Grant 421, W. R. Tweedy.....	150.00
Grant 422, T. Grier Miller.....	300.00
Grant 423, Alfred Gilman.....	300.00
Grant 424, Charles P. Sheldon.....	200.00
Grant 425, William J. Turner.....	50.00
Grant 426, H. P. Smith.....	500.00
Grant 427, Helen S. Mitchell.....	300.00
Grant 428, D. B. Phemister, K. Grimson and H. Wilson.....	400.00
Grant 429, Abraham White.....	100.00
Grant 430, S. W. Ranson.....	315.00
Grant 431, Benjamin Harrow.....	200.00
Grant 432, Roe E. Remington.....	200.00
Grant 433, Frederick Lemere.....	500.00
Grant 434, Wilbert H. McGaw.....	500.00
Grant 435, Warren O. Nelson.....	300.00
Grant 436, Albert P. Krueger.....	300.00
Clerical Expense.....	600.00
Committee Expense.....	303.71
Printing and Supplies.....	25.38

\$14,809.09

Balance on hand.....\$ 6,688.42

in aid of medical research and \$1,200 for committee expenses. The financial statement for 1936 is presented; also brief accounts of grants pending at the end of 1935 and a list of grants made in 1936.

Respectfully submitted.

COMMITTEE ON SCIENTIFIC RESEARCH OF
THE AMERICAN MEDICAL ASSOCIATION
LUDVIG HEKTOEN, Chicago, Chairman.
Term expires, 1941.
C. C. BASS, New Orleans.
Term expires, 1937.
JOHN J. MORTON, Rochester, N. Y.
Term expires, 1938.
N. W. JONES, Portland, Ore.
Term expires, 1939.
MARTIN H. FISCHER, Cincinnati.
Term expires, 1940.

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

NEW GRANTS—1936

- Grant 393: Lloyd H. Ziegler and Arthur Knudson, Albany Medical College, \$165, effect of rickets on activity of rats.
- Grant 394: Charles Huggins, University of Chicago, \$300, bone marrow.
- Grant 395: Israel S. Kleiner, New York Homeopathic Medical College, \$350, formation of cevitamic (ascorbic) acid.
- Grant 396: Valy Menkin, Harvard Medical School, \$600, iron metabolism and effect of ferric chloride on tuberculosis.
- Grant 397: R. F. Hanzal, Western Reserve University, \$150, source of endogenous uric acid and the effects of methylated xanthines on its secretion.
- Grant 398: George A. Emerson, West Virginia University, Morgantown, \$175, metabolic products of sympathomimetic amines.
- Grant 399: Felix Saunders, University of Chicago, \$250, essential growth factor for bacteria.
- Grant 400: John Field, Stanford University, \$200, effect of dinitrophenol on the lens.
- Grant 401: W. T. Dawson, University of Texas, Galveston, \$200, toxicity of cardiac glucosides.
- Grant 402: C. H. Thienes and L. T. Samuels, University of Southern California, \$500, carbohydrate metabolism as influenced by the hypophysis.
- Grant 403: Samuel Soskin, Michael Reese Hospital, Chicago, \$750, laboratory tests for endocrine dysfunctions.
- Grant 404: Peter Heinbecker, Washington University, St. Louis, \$750, mechanism of altered sensitivity of smooth musculature to epinephrine.
- Grant 405: M. M. Wintrobe, Johns Hopkins University, \$200, vertebrate red corpuscles.
- Grant 406: Helen B. Coombs, New York Homeopathic Medical College, \$200, action of acetylcholine on the central nervous system.
- Grant 407: Ralph I. Dorfman, Louisiana State University, \$250, estrogenic substance in human urine and other estrogenic compounds.
- Grant 408: Gustav J. Martin, Trudeau Sanatorium, Trudeau, N. Y., \$200, lipoids of tubercle bacilli.
- Grant 409: Lester R. Dragstedt and G. M. Dack, University of Chicago, \$600, relation of *B. necrophorum* to chronic ulcerative colitis in man.
- Grant 410: H. E. Eggers, University of Nebraska, \$200, effect of tetra-methyl-arsonium gluconate on human cancer.
- Grant 411: Fae D. Wood, University of California at Los Angeles, \$125, distribution of *Trypanosoma cruzi* in southwestern United States.
- Grant 412: Robert H. Gault and A. C. Ivy, American Institute for Deaf-Blind, Evanston, Evanston, Ill., \$400, stimulation of vibrotactile organs by mechanical vibrations.
- Grant 413: Philip Levine, Newark Beth Israel Hospital, Newark, N. J., \$350, bacteriophage action in the dysentery group.
- Grant 414: John R. Murlin, University of Rochester School of Medicine and Dentistry, \$600, testis hormone.
- Grant 415: Gordon H. Scott, Washington University, St. Louis, \$300, lead and aluminum in cerebrospinal fluid.
- Grant 416: Jean Broadhurst, Teachers College, Columbia University, \$200, inclusion bodies in the female genital area.
- Grant 417: Isaac Schour, University of Illinois College of Dentistry, \$400, parathyroids in calcium metabolism.
- Grant 418: Frank W. Allen, University of California, \$200, nucleotide of the red corpuscles.
- Grant 419: Carl A. Dragstedt, Northwestern University Medical School, \$250, rôle of histamine and of adrenal cortex extract in anaphylaxis in the dog.
- Grant 420: Arthur Knudson, Albany Medical College, \$400, synthesis of cholesterol in the animal body.
- Grant 421: W. R. Tweedy, Loyola University, Chicago, \$150, action of parathyroid extract.
- Grant 422: T. Grier Miller, Hospital of University of Pennsylvania, \$300, chemical composition of human succus entericus and absorption of dextrose from small intestine.
- Grant 423: Alfred Gilman, Yale University, \$300, physiology of the antidiuretic hormone of the posterior pituitary.
- Grant 424: Charles P. Sheldon, Albany Medical College, \$200, respiration in pregnancy and labor.
- Grant 425: William J. Turner, State Tuberculosis Sanatorium, Crescon, Pa., \$50, uroporphyrins.
- Grant 426: H. P. Smith, State University of Iowa, \$500, blood clotting.
- Grant 427: Helen S. Mitchell, Massachusetts State College, \$300, nutritional cataract in rats.
- Grant 428: D. B. Phenemier, K. Grimson and H. Wilson, University of Chicago, \$400, effect of sympathectomy on blood pressure in dogs.
- Grant 429: Abraham White, Yale University, \$100, sulfur of proteins.
- Grant 430: S. W. Ranson, Northwestern University Medical School, \$315, fever producing agents.
- Grant 431: Benjamin Harrow, College of the City of New York, \$200, purification of the hyperglycemic factor in urine.
- Grant 432: Roe E. Remington, Medical College of the State of South Carolina, \$200, quantitative effect of iodine deficiency in the rat.

Grant 433: Frederick Lemere, Eastern State Hospital, Medical Lake, Wash., \$500, Berger brain rhythms in psychotic patients.

Grant 434: Wilbert H. McGaw, Western Reserve University, \$500, sound conduction in fractured bones.

Grant 435: Warren O. Nelson, Wayne University College of Medicine, Detroit, \$300, effect of synthetic androgenic substances.

Grant 436: Albert P. Krueger, University of California, \$300, nature of bacteriophage.

STATE OF WORK UNDER PREVIOUS GRANTS

1. COMPLETED DURING THE YEAR

Grant 218, 1931: Clayton, J. Lundy, Rush Medical College, Chicago, \$1,000 toward making animated motion pictures of the actions of the heart in health and in disease. See description of film showing normal heart action in *THE JOURNAL*, Dec. 23, 1933, page 2078. Honorable Mention, Scientific Exhibit, A. M. A., 1933. Lundy, C. J.: *The Heart Beat Mechanism in Health and Disease*, Heart Movie, six reels.

Grant 238, 1932: Harold E. Himwich, Yale University, \$1,000, the relation of the autonomic nervous system to metabolism and effect of alcohol on metabolism. Himwich, H. E., and associates: Effects of Alcohol on Metabolism, *Am. J. Physiol.* **101**: 57, 1932; Metabolism of Alcohol, *J. A. M. A.* **100**: 651, 1933. Barker, S. B.; Fazikas, J. F., and Himwich, H. E.: Metabolic Aspects of Thyroid-Adrenal Interrelationship, *Am. J. Physiol.* **115**: 415, 1936.

Grant 269, 1932: M. M. Wintrobe, Johns Hopkins Hospital, \$250, vertebrate red corpuscles. Wintrobe, M. M.: Variations in the Size and Hemoglobin Content of Erythrocytes in the Blood of Various Vertebrates, *Folia haemat.* **51**: 32, 1933. Wintrobe, M. M., and Shumacker, H. B., Jr.: Comparison of Hematopoiesis in the Fetus and During Recovery from Pernicious Anemia, *J. Clin. Investigation* **14**: 837, 1935. Wintrobe, M. M., and Shumacker, H. B., Jr.: Erythrocyte Studies in the Mammalian Fetus and New-Born, *Am. J. Anat.* **58**: 313, 1936. See grant 405, 1936.

Grant 276, 1933: Jessie L. King, Goucher College, Baltimore, \$75, effect of cortical extract on suprarenalectomized rats. See grant 391, 1935. King, Jessie L.: Effect of Massive Doses of Adrenal Cortical Hormone on the Albino Rat, submitted for publication in *Proc. Soc. Exper. Biol. & Med.*

Grant 314, 1934: Bernard Portis, Michael Reese Hospital, Chicago, \$300, immune reactions of Flexner-Jobling rat tumor. Portis, Bernard, and Roth, Harold: Effect of Immune Serum on Transplantable Flexner-Jobling Rat Carcinoma, *Arch. Path.* **22**: 722, 1936.

Grant 322, 1934: W. J. Nungester, Northwestern University Medical School, \$130, the effect of mucin on infection. See grant 352, 1935. Nungester, W. J., and Jourdonais, L. F.: Mucin as an Aid in the Experimental Production of Lobar Pneumonia, *J. Infect. Dis.* **59**: 258, 1936.

Grant 327, 1934: Timothy Leary, Office of Medical Examiner, Boston, \$800 for study of cholesterol atherosclerosis in rabbits (refund, \$48.63). Leary, Timothy: Atherosclerosis, the Important Form of Arteriosclerosis, a Metabolic Disease, *J. A. M. A.* **105**: 475, 1935. Leary, Timothy: Atherosclerosis: Special Consideration of Aortic Lesions, *Arch. Path.* **21**: 419, 1936. Leary, Timothy: Atherosclerosis: Etiology, *ibid.*, p. 459.

Grant 333, 1934: Arthur J. Geiger and Louis S. Goodman, Yale University, \$250, study of antianemic principle. (See also grant 340, 1934, and grant 382, 1935.) Goodman, L. S.; Geiger, A. J.; and Claiborn, L. N.: Antianemia Potency of Liver After Gastrectomy in Swine, *Proc. Soc. Exper. Biol. & Med.* **32**: 810, 1935. Goodman, L. S.; Geiger, A. J., and Klumpp, T. G.: Concerning the Specific Response of Guinea-Pig's Reticuloocytes to Substances Effective in Pernicious Anemia, *J. Clin. Investigation* **15**: 435, 1936.

Grant 341, 1934: Ludwig A. Emge, Stanford University School of Medicine, \$500, pregnancy and tumor growth. See grant 365, 1935. Emge, L. A., and Murphy, K. M.: The Relation of the Endocrine System to Tumor Growth, *Am. J. Obst. & Gynec.* **32**: 593, 1936.

Grant 342, 1934: S. S. Lichtman, Mount Sinai Hospital, New York, \$400, bile salt metabolism in liver disease. Lichtman, S. S.: The Blood Clearance and Renal Excretion of Bile Acids Following the Intravenous Injection of Cholic and Desoxycholic Acids, *Am. J. Physiol.* **117**: 665, 1936.

Grant 347, 1935: Edward S. West, University of Oregon Medical School, \$300, hydroxylated fatty acids in tissues. Hafner, P. G.; Swinney, R. H., and West, E. S.: Hydroxylated Acids of Fats: An Improved Method of Determination, *J. Biol. Chem.* **116**: 691, 1936.

Grant 349, 1935: Edward H. Schwab, University of Texas School of Medicine, \$200, mechanism of cardiac hypertrophy. See grant 392, 1935. Herrmann, G.; Decherd, G.; Erhard, P., and Schwab, E. H.: Normal Heart Weight/Body Weight (HW/BW) and Left to Right Ventricular (L/R) Ratios for Rabbits, *Proc. Soc. Exper. Biol. & Med.* **33**: 409, 1935. Schwab, E. H.; Herrmann, G., and Connally, J. E., Jr.: Experimental Ablation of Posterior as Contrasted to Anterior Aortic Cusp of Cardiac Hypertrophy in the Rabbit, *ibid.*, p. 410. Decherd, G.; Schwab, E. H.; Herrmann, G., and Brown, W. O.: Creatine Content of Hypertrophied Rabbits' Heart Muscle, *ibid.*, p. 521. Herrmann, G.; Decherd, G.; Schwab, E. H., and Erhard, P.: Creatine Content of Digitalized Normal and Hypertrophied Rabbit Heart Muscle, *ibid.*, p. 522. Decherd, G. M., Jr.; Herrmann, G., and Schwab, E. H., *ibid.* **34**: 864, 1936.

Grant 351, 1935: W. O. Thompson, Rush Medical College, \$300, effect of enzymatic digestion on desiccated thyroid (refund, \$250). Thompson, W. O.; Nadler, S. B.; Thompson, P. K.; Taylor, S. G. III, and Dickie, L. F. N.: A Peptide of Thyroxine with Greater Calorigenic Activity Than Desiccated Thyroid: A Consideration of Methods of Assay, *J. Clin. Investigation* **15**: 473, 1936.

Grant 352, 1935: W. J. Nungester, Northwestern University Medical School, \$250, experimental lobar pneumonia. See grant 322, 1934. Nungester, W. J.; Jourdonais, L. F., and Wolf, A. A.: The Effect of Mucin on Infections by Bacteria, *J. Infect. Dis.* 59:11, 1936. Gunn, F. D., and Nungester, W. J.: Pathogenesis and Histopathology of Experimental Pneumonia in Rats, *Arch. Path.* 21:813, 1936.

Grant 354, 1935: Roy H. Turner, Tulane University School of Medicine, \$450, physiology of peripheral vessels. Turner, R. H.; Sodeman, W. A., and Burch, G. E.: Volumetric Studies of the Circulation in a Sharply Defined Portion of the Human Finger Tip, *J. Clin. Investigation* 15:461, 1936. Turner, R. H.: Studies in the Physiology of Blood Vessels in Man, Apparatus and Methods: I. A Sensitive Plethysmograph for a Portion of the Finger, to be submitted for publication in *J. Clin. Investigation*. Sodeman, W. A.: Studies in the Physiology of Blood Vessels in Man, Apparatus and Methods: II. A Method for the Determination of the Volume of the Soft Tissue about the Terminal Phalanx of the Human Finger, to be submitted for publication in *J. Clin. Investigation*. Sodeman, W. A., Burch, G. E., and Turner, R. H.: Studies in the Physiology of Blood Vessels in Man: III. The Effect of Position of the Arm upon the Circulation of the Human Finger Tip in Health and in Certain Vascular Diseases, to be submitted for publication in *J. Clin. Investigation*.

Grant 358, 1935: John Field, Stanford University, \$200, nitrated phenols and related compounds. Field, John, and Martin, A. W.: Action du dinitrophenol 1.2.4. sur les levures lavées, *Compt. rend. Soc. de biol.* 119:458, 1935. Field, John, 2d, and Martin, A. W.: Effect of Repeated Washing on Stimulation of Yeast Respiration by 2.4 Dinitrophenol, *Proc. Soc. Exper. Biol. & Med.* 32:1285, 1935. Field, John, 2d: Effect of 4-6 Dinitro-o-Cresol on Yeast Respiration, *ibid.*, p. 1342. Field, John, 2d, and Tainter, E. G.: Some Evidence that 2.4 Dinitrophenol and 4-6 Dinitro-o-Cresol have a Common Site of Action on the Yeast Cell, *Arch. internat. de pharmacodyn. et de therap.* 54:84, 1936. See grant 400, 1936.

Grant 364, 1935: Dean A. Collins, University of Minnesota Medical School, \$200, hypertension following ligation of renal arteries in dogs. Collins, D. A.: The Phenolsulfonphthalein Renal Function Test in Dogs, *Am. J. Physiol.* 115:27, 1936. Collins, D. A.: Hypertension from Constriction of the Arteries of Denervated Kidneys, *ibid.* 116:616, 1936.

Grant 371, 1935: A. Barnett, New York University, \$300, measurement of impedance angle in thyrotoxicosis. Barnett, A., and Bagno, S.: The Physiological Mechanisms Involved in the Clinical Measure of Phase Angle, *Am. J. Physiol.* 114:366, 1936. Barnett, A., and Byron, C. S.: A Comparative Study of Impedance Angle and B. M. R. in 325 Consecutive Cases, *West. J. Surg.* 44:387, 1936.

Grant 373, 1935: Frank W. Allen, University of California, \$100, correlation of nucleotide content with glycolytic power of red blood cell in pernicious anemia. Allen, F. W.; Lucia, S. P., and Eiler, J. J.: Nucleotide Nitrogen Content of Human White Blood Cells, *Proc. Soc. Exper. Biol. & Med.* 34:609, 1936. See grant 418, 1936.

Grant 374, 1935: Charles B. Huggins, University of Chicago, \$400, relation of temperature to hematopoiesis. Huggins, C. B.; Blocksom, B. H., Jr., and Noonan, W. J.: Temperature Conditions in the Bone Marrow of Rabbit, Pigeon and Albino Rat, *Am. J. Physiol.* 115:395, 1936. Huggins, C. B., and Blocksom, B. H., Jr.: Changes in Outlying Bone Marrow Accompanying a Local Increase of Temperature Within Physiological Limits, *J. Exper. Med.* 64:253, 1936. Huggins, C. B., and Noonan, W. J.: An Increase in Reticulo-Endothelial Cells in Outlying Bone Marrow Consequent upon a Local Increase in Temperature, *ibid.*, p. 275. This work was awarded the gold medal, class 1, Scientific Exhibit, at the Kansas City session of the American Medical Association, 1936. See grant 394, 1936.

Grant 375, 1935: Heinrich Necheles, Michael Reese Hospital, Chicago, \$100, action of pitressin on gastro-intestinal motility. Necheles, Heinrich; Maskin, M.; Strauss, S.; Strauss, A. A., and Taft, E.: Effect of Posterior Pituitary Extracts on Motility of the Gastro-Intestinal Tract, *Arch. Surg.* 33:780, 1936.

Grant 383, 1935: Harry Sobotka, Mount Sinai Hospital, New York, \$300, enzymatic destruction of blood group carbohydrate (refund, \$75.10). Sobotka, Harry; Witelsky, E.; Neter, E., and Schwarz, E. S.: Relation of Blood Group Specific Substance A to the Type Specific Carbohydrate of Pneumococcus Type 1, *J. Infect. Dis.*, to be published.

Grant 391, 1935: Jessie L. King, Goucher College, \$50, effect of cortical extract on rats. See grant 276, 1933.

Grant 392, 1935: Edward H. Schwab, University of Texas School of Medicine, \$150, mechanism of cardiac hypertrophy. See grant 349, 1935.

Grant 394, 1936: Charles Huggins, University of Chicago, \$300, bone marrow. See grant 374, 1935.

Grant 395, 1936: Israel S. Kleiner, New York Homeopathic Medical College, \$350, formation of cevitamic (ascorbic) acid (refund, \$2.20). Kleiner, I. S., and Tauber, H.: Vitamin C Studies: The Requirement of Mice, the Effect of Large Quantities, and the Question of Its Formation Biologically, *Food Research* 1:399, 1936.

2. INCOMPLETE

A. Work under the grant completed, account rendered of expenses but results not published fully:

Grant 174, 1930: Alfred R. Ross, College of Medical Evangelists, Loma Linda, Calif., \$1,455, hay fever pollens in the Southwest.

Grant 179, 1930: George T. Pack, Memorial Hospital, New York, \$300, certain clinicopathologic problems of melanoma. See grant 231, 1932. Adair, F. E.: Treatment of Melanoma, *Surg., Gynec. & Obst.* 62:406, 1936.

Grant 231, 1932: George T. Pack, Memorial Hospital, New York, \$500, complete analysis of 300 cases of melanoma. See grant 179, 1932.

Grant 297, 1933: Erma A. Smith, Iowa State College, \$150, effect on the rat of sublethal amounts of illuminating gas. Smith, Erma; McMillan, E., and Mack, Lillian: Factors Influencing the Lethal Action of Illuminating Gas, *J. Indust. Hyg.* 17:18, 1935. Williams, I. R., and Smith, Erma: Blood Picture, Reproduction, and General Condition During Daily Exposure to Illuminating Gas, *Am. J. Physiol.* 110:611, 1935.

Grant 308, 1933: John L. Ulrich, Johns Hopkins University, \$250, the reflex system in the cat. See grant 372, 1935.

Grant 317, 1934: M. D. Overholser, University of Missouri, \$300, experimental growths in genital tract of monkeys and relation of anterior hypophysis to diabetes. Nelson, W. O., and Overholser, Milton D.: Effect of Oestrin Injections upon Experimental Pancreatic Diabetes in the Monkey, *Proc. Soc. Exper. Biol. & Med.* 32:150, 1934. Overholser, M. D., and Nelson, W. O.: Migration of Nuclei in Uterine Epithelium of Monkey Following Prolonged Estrin Injections, *Proc. Soc. Exper. Biol. & Med.* 34:839, 1936. Nelson, W. O., and Overholser, M. D.: The Effect of Estrogenic Hormone on Experimental Pancreatic Diabetes in the Monkey, *Endocrinology* 20:473, 1936.

Grant 353, 1935: Frank R. Menne, University of Oregon Medical School, \$500, metabolism of cholesterol in rabbits (refund, \$10.78).

Grant 360, 1935: A. M. Wright, J. J. Mulholland and F. W. CoTui, New York University, \$300, physiology of sympathectomized dogs (refund, \$1.30).

Grant 361, 1935: P. L. Heitmeyer, University of Oregon Medical School, \$100, experimental uterine ovarian implants.

Grant 362, 1935: Lloyd H. Ziegler and Arthur Knudson, Albany Medical College, \$100, activity after recovery from rickets.

Grant 363, 1935: Rachel E. Hoffstadt, University of Washington, \$100, protein and carbohydrate fractions of *Staphylococcus aureus*.

Grant 369, 1935: Harold Jeghers, Boston University School of Medicine, \$150, vitamin A deficiency in certain diseases.

Grant 372, 1935: John L. Ulrich, Johns Hopkins University, \$450, cerebral functions in the action of antagonistic muscles. See grant 308, 1933.

B. ACTIVE WORK STILL IN PROGRESS

Grant 254, 1932: J. Lisle Williams, McCormick Institute, Chicago, \$200, decreased dextrose tolerance in acute infectious diseases.

Grant 277, 1933: Gustav Zechel, University of Illinois College of Medicine, \$260, study of growing malignant cells by moving photomicrographs. Zechel, Gustav, and Morgenstern, O.: A Timing Device for Talking Motion Pictures, *Science* 81:23, 1935.

Grant 286, 1933: F. H. Pike, Columbia University, \$600, the effects of successive experimental lesions of the nervous system.

Grant 309, 1933: Carroll L. Birch, University of Illinois School of Medicine, \$300, assay of urine for sex hormone of the anterior pituitary.

Grant 310, 1934: Lay Martin, Johns Hopkins University, \$150, study of gastric juice.

Grant 324, 1934: William deB. MacNider, University of North Carolina, \$285, study of artificial circulation in the kidney.

Grant 337, 1934: James L. O'Leary, Washington University, \$245, Loven reflexes.

Grant 340, 1934: Louis S. Goodman and Arthur J. Geiger, Yale University, \$200, further study of antianemic principle. See grants 333, 1934, and 382, 1935.

Grant 343, 1934: John Guttman, Post-Graduate Medical School and Hospital, \$400, relation between electrical disturbances in cochlea and the sensation of hearing.

Grant 338, 1934: W. W. Brandes, Baylor University, \$150, the effect of acidosis on antibodies and resistance to infection.

Grant 344, 1934: Paul L. Day and W. C. Langston, University of Arkansas School of Medicine, \$300, effect of withdrawal of vitamin G from diet of monkeys.

Grant 345, 1934: Emile Holman, Stanford University School of Medicine, \$400, study by Frederick Fender of prolonged stimulation of the nervous system. See grant 377, 1935.

Grant 346, 1934: William Antopol, Mount Sinai Hospital, New York, \$250, relationship of acetylcholine to carbohydrate metabolism. Tuchman, L.; Schiffrin, A., and Antopol, W.: Blood Amylase Response to Acetyl-Beta-Methylcholine Chloride in Pancreatized Dogs, *Proc. Soc. Exper. Biol. & Med.* 33:142, 1935. Schiffrin, A.; Tuchman, L., and Antopol, W.: Blood Amylase Response to Acetyl-Beta-Methylcholine Chloride in Rabbits, *Proc. Soc. Exper. Biol. & Med.* 34:539, 1936.

Grant 348, 1935: Phillips Thygeson, State University of Iowa, \$400, trachoma and "inclusion virus" disease of the genito-urinary tract. Thygeson, Phillips, and Mengert, W. F.: The Virus of Inclusion Conjunctivitis, *Arch. Ophthalm.* 15:377, 1936.

Grant 350, 1935: Frederic A. Gibbs, Harvard University School of Medicine, \$100, fiber system in the cat's brain concerned in convulsions.

Grant 355, 1935: Royall M. Calder, San Antonio, Texas, \$150, mechanism of pneumococcus inflammation.

Grant 356, 1935: Jay C. Davis, University of Minnesota, \$500, coronary flow and lesions of the aortic valves.

Grant 365, 1935: Ludwig A. Emge, Stanford University School of Medicine, \$500, effect of castration on malignant tumors. See grant 341, 1934.

Grant 366, 1935: G. E. Burget, University of Oregon Medical School, \$500, physiology of cardiac portion of stomach. Burget, G. E., and Zeller, W. E.: A Study of the Cardia in Unanesthetized Dogs, *Proc. Soc. Exper. Biol. & Med.* 34:433, 1936.

Grant 367, 1935: Robert Gault and A. C. Ivy, American Institute for the Deaf-Blind, Evanston, Ill., \$600, mechanical stimulation of the vibrotactile organs. See grant 412, 1936.

Grant 368, 1935: Felix Saunders, University of Chicago, \$250, growth factors for bacteria. See grant 399, 1936.

Grant 370, 1935: Richard L. Crouch, University of Missouri, \$500, connections of diencephalon.

Grant 377, 1935: Frederick A. Fender, Stanford University School of Medicine, \$600, prolonged stimulation of parts of the nervous system. See grant 345, 1934.

Grant 378, 1935: Wallace M. Yater, Georgetown University Hospital, Washington, D. C., histopathologic basis of "bundle branch" block.

Grant 379, 1935: Victor C. Myers (Donald E. Bowman), Western Reserve Medical School, \$650, chemical test for pregnancy.

Grant 380, 1935: N. W. Popoff, Highland Hospital, Rochester, N. Y., \$600, arteriovenous anastomosis.

Grant 381, 1935: John R. Murlin, University of Rochester Medical School, \$600, testis hormone. See grant 414, 1936. Kochakian, C. D., and Murlin, J. R.: The Relationship of the Synthetic Male Hormone, Androstendion, to the Protein and Energy Metabolism of Castrate Dogs, and the Protein Metabolism of a Normal Dog, *Am. J. Physiol.* **117**: 642, 1936.

Grant 382, 1935: L. Goodman, A. J. Geiger and L. Claiborn, Yale University, \$250, antianemic principle. See grants 333 and 340, 1934.

Grant 385, 1935: Erwin Brand and G. F. Cahill, New York State Psychiatric Institute and Hospital, \$200, cystinuria.

Grant 386, 1935: E. V. McCollum, Johns Hopkins University, \$150, adaptation of the eyes to subdued light and its relation to vitamin A (refund, \$19.65).

Grant 387, 1935: George D. Snell, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, \$500, hereditary changes in germ cells from x-rays (refund, \$20).

Grant 388, 1935: Tracy J. Putnam, Boston City Hospital, Boston, \$150, effect of low voltage current on nervous system.

Grant 389, 1935: Tracy J. Putnam, Boston City Hospital, Boston, \$150, mechanism of cortical atrophy in dementia paralytica.

Grant 390, 1935: Abraham White, Yale University, \$100, chemistry and metabolism of the sulfur of proteins (refund, \$8.25). See grant 429, 1936. White, A., and Fishman, J. B.: The Formation of Taurine by the Decarboxylation of Cysteic Acid, *J. Biol. Chem.* **116**: 457, 1936. field, Ill., \$100, available dextrose in certain common foodstuffs.

3. DISCONTINUED (NO RESULTS PUBLISHED)

Grant 287, 1933: Thomas D. Masters, Springfield Hospital, Springfield, Ill., \$100, available dextrose in certain common foodstuffs.

Grant 306, 1934: Charles H. Frazier, Hospital of University of Pennsylvania, \$751, autonomic representation of the urinary bladder in the cerebral cortex and in hypothalamus (refund, \$476.94).

Grant 376, 1935: Herbert F. Thurston, University of Indiana School of Medicine, \$300, roentgen ray in treatment of gas gangrene (refund, \$300).

Grant 384, 1935: J. Louis Weller, George Washington University, \$108, action of certain substances on hematopoietic tissue of the chick (refund, \$108).

Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year 1936 the Committee issued twenty-seven new grants. A detailed list of these grants, together with a list of publications during 1936, and of unexpired grants made before Jan. 1, 1936, will be found in the appendix to this report.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1936:

1. Rat Test for Drug Addiction, Eugene J. Stanton: *Proceedings of the Society for Experimental Biology and Medicine*, April 1936, p. 340.

2. A Modified Pigeon Method for the Bioassay of Anti-Pernicious Anemia Liver Extracts, G. E. Wakerlin, H. D. Bruner and J. M. Kinsman: *Journal of Pharmacology and Experimental Therapeutics* **58**: 1 (Sept.) 1936.

3. Presence in Normal Human Urine of a Reticulocyte-Stimulating Principle for the Pigeon, G. E. Wakerlin and H. D. Bruner: *Archives of Internal Medicine* **57**: 1032 (May) 1936.

4. The Relation of the Reticulocytogenic Urine Principle to the Anti-Pernicious Anemia Liver Principle, G. E. Wakerlin: *Proceedings of the Central Society for Clinical Research*, November 1936, p. 46.

5. A Partially Purified Liver Extract Therapeutically Effective in Pernicious Anemia, Y. Subbarow, Bernard M. Jacobson and Cyrus H. Fiske: *New England Journal of Medicine* **214**: 194 (Jan. 30) 1936.

6. Chemical Studies of the Pernicious Anemia Principle in Liver, Bernard M. Jacobson and Y. Subbarow: *Journal of Biological Chemistry* **114**: 102 (May) 1936.

7. A Note on the Guinea-Pig Method of Assay of Liver Extract, Bernard M. Jacobson: *British Journal of Experimental Pathology* **17**: 307 (Aug.) 1936.

8. Studies of the Pernicious Anemia Principle in Liver: III. The Isolation and Properties of a Substance with Primary Therapeutic Activity, Y. Subbarow, Bernard M. Jacobson and Vilma Prochownik: *Journal of the American Chemical Society* **58**: 2234 (Nov.) 1936.

9. The Biological Assay of Estrogenic Substances in the Human by the Use of Vaginal Smears, Henry B. Richardson, Ephraim Shorr and George N. Papanicolaou: *Transactions of the Association of American Physicians* **51**: 213, 1936.

10. The Action of Ovarian Follicular Hormone in the Menopause, as Indicated by Vaginal Smears, George N. Papanicolaou and Ephraim Shorr: *American Journal of Obstetrics and Gynecology* **31**: 806 (May) 1936.

11. Vaginal Smears During Spontaneous Symptomatic Relief in the Menopause, Ephraim Shorr and George N. Papanicolaou: *Journal of Clinical Investigation* **15**: 454 (July) 1936.

12. Chemical Studies of Acute Poisoning from Mercury Bichloride, Torald Sollmann and Nora E. Schreiber: *Archives of Internal Medicine* **57**: 46 (Jan.) 1936.

13. Further Studies Dealing with the Sublingual Absorption of Drugs, Robert P. Walton: *Journal of Pharmacology and Experimental Therapeutics* **57**: 148 (June) 1936.

14. The Ineffectiveness of Drugs upon Collateral Flow After Experimental Coronary Occlusion in Dogs, Carl J. Wiggers and Harold D. Green: *American Heart Journal* **11**: 527 (May) 1936.

15. The Influence of Cortico-Adrenal Extract on the Course of Bacterial Intoxications in Guinea-Pigs, Richard W. Whitehead and Charles A. Fox: *Endocrinology* **20**: 93 (Jan.) 1936.

16. Relation of the Adrenal Glands to Immunological Processes, Charles A. Fox and R. W. Whitehead: *Journal of Immunology* **30**: 51 (Jan.) 1936.

17. The Production of a Deficiency Involving Cystine and Methionine by the Administration of Cholic Acid, Abraham White: *Journal of Biological Chemistry* **112**: 503 (Jan.) 1936.

18. The Availability of dl-Amino-N-Methylhistidine for Growth, Jacob B. Fishman and Abraham White: *Journal of Biological Chemistry* **113**: 175 (Feb.) 1936.

19. Sugar Alcohols: V. Chemical Constitution and Sweet Taste, C. Jelleff Carr, Frances F. Beck and John C. Krantz Jr.: *Journal of the American Chemical Society* **58**: 1394 (Aug.) 1936.

20. Acute Toxicity of Certain Sugar Alcohols and Their Anhydrides, Frances F. Beck, C. Jelleff Carr and John C. Krantz Jr.: *Proceedings of the Society for Experimental Biology and Medicine* **35**: 98 (Oct.) 1936.

21. Diseases of the Nails, Cleveland White: *Urologic and Cutaneous Review* **40**: 562 (Aug.) 1936.

22. Relative Actions of Dihydromorphinone Hydrochloride and Morphine Sulfate on the Excised Ureter and Bell's Muscle, Charles M. Gruber: *Proceedings of the Society for Experimental Biology and Medicine* **33**: 532 (Jan.) 1936.

23. The Effect of Methyl-Amino Methyl Heptene (Octin) upon the Intact Intestine in the Nonanesthetized Dog, Charles M. Gruber: *Journal of Pharmacology and Experimental Therapeutics* **56**: 284 (March) 1936.

24. The Action of Epinephrine, Tyramine and Ephedrine on the Small Intestine of the Unanesthetized Dog, Before and Following the Administration of Cocaine, Charles M. Gruber: *Journal of Pharmacology and Experimental Therapeutics* **57**: 347 (Aug.) 1936.

25. Experimental Radium Poisoning: I. Bone Marrow and Lymph Node Changes in Rabbits, Produced by Oral Administration of Radium Sulfate, Maurice Rosenthal and Edwin J. Grace: *American Journal of the Medical Sciences* **191**: 607 (May) 1936.

26. Further Studies in Experimental Granulopenia, with Particular Reference to Sulfhydryl (Glutathione) Metabolism in Blood Dyscrasias, Francis P. Parker and Roy R. Kracke: *American Journal of Clinical Pathology* **6**: 41 (Jan.) 1936.

27. Dilation of the Coronary Vessels by Certain Organic Extracts and Drugs, Charles W. Greene: *Journal of Pharmacology and Experimental Therapeutics* **57**: 98 (May) 1936.

28. An Analysis of the Relations of the Coronary Constrictor and Dilator Nerves in the Cervical Vagosympathetic of the Dog, Charles W. Greene: *American Heart Journal* **11**: 592 (May) 1936.

29. The Nervous Control of the Coronary Circulation and Its Clinical Significance, Charles W. Greene: *Southern Medical Journal* **29**: 478 (May) 1936.

30. Chemotropism of Leukocytes in Relation to Their Rate of Locomotion, Harold M. Dixon and Morton McCutcheon: *Proceedings of the Society for Experimental Biology and Medicine* **34**: 173 (March) 1936.

31. Chemotropic Reactions of Polymorphonuclear Leukocytes to Various Micro-Organisms, Morton McCutcheon and Harold M. Dixon: *Archives of Pathology* **21**: 749 (June) 1936.

32. Researches on Pyrimidines: CLIV. Pyrimidine Side Chain Reactions Useful for the Synthesis of 1, 3-Diazines Related Structurally to Vitamin B₁, Anne Litzinger and Treat B. Johnson: *Journal of the American Chemical Society* **58**: 1936 (Oct.) 1936.

33. Researches on Pyrimidines: CLV. The Synthesis of Thymine, amine and Its Conversion into Uracil, Treat B. Johnson and Anne Litzinger: *Journal of the American Chemical Society* **58**: 1940 (Oct.) 1936.

34. Experimental Therapy in Coccidioid Granuloma, Harold C. Sox and Ernest C. Dickson: *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* 106:777 (March 7) 1936.

35. The Relation of Leucine, Isoleucine, and Norleucine to Growth, Madelyn Womack and William C. Rose: *Journal of Biological Chemistry* 116:381 (Nov.) 1936.

36. Effect of Carotene and Vitamin A on Patients with Diabetes Mellitus: III. The Effect of the Daily Administration of Carotene on the Blood Carotene of Normal and Diabetic Individuals, Elaine P. Ralli, Arthur C. Pariente, Harold Brandaleone and Sidney Davidson: *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* 106:1975 (June 6) 1936.

37. A Summary of Studies on the Effect of Ferric Chloride on Tuberculous Rabbits, Vally Menkin: *Proceedings of the Society for Experimental Biology and Medicine* 34:262 (March) 1936.

38. Significance of Carbohydrate Metabolism and Local Acidosis in Inflammation, Vally Menkin and Charlotte R. Warner: *Proceedings of the Society for Experimental Biology and Medicine* 34:594 (June) 1936.

39. Experimental Siderosis: III. Spectroscopic Studies of Iron-Containing Pigment, Egon Lorenz and Vally Menkin: *Archives of Pathology* 22:82 (July) 1936.

40. Studies on Inflammation: XII. Mechanism of Increased Capillary Permeability—A Critique of the Histamine Hypothesis, Vally Menkin: *Journal of Experimental Medicine* 64:485 (Sept. 1) 1936.

41. Paralyzing Effects of Sodium Citrate on the Cardiac Vagus and on Heart Muscle of the Cat, George D. Shafer and Jefferson M. Crismon: *Journal of Pharmacology and Experimental Therapeutics* 58:274 (Nov.) 1936.

42. The Alimentary Fate of Hemin in Man, Franklin C. Bing, Franklin A. Benes and Donald G. Remp: *Proceedings of the American Society of Biological Chemists, Journal of Biological Chemistry*, May 1936.

43. A Study of Blood Constituents in Pollinosis With and Without Treatment, M. L. Hathaway, B. Z. Rappaport, C. I. Reed and H. C. Struck: *Journal of Allergy* 8:1 (Nov.) 1936.

44. Total Plasmapheresis, John B. Stanbury, Edna Warweg and William R. Amberson: *American Journal of Physiology* 117:230 (Oct.) 1936.

During 1936 the following grants were made:

Grant 279: Norman A. David, assistant professor of pharmacology, University of Cincinnati College of Medicine, \$65, to investigate the effects of carbarsone and other pentavalent arsenicals on the optic nerve.

Grant 280: John P. Peters, professor of medicine, Yale University School of Medicine, \$200, to investigate by means of intravenous pyelography the state of ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of toxemia.

Grant 281: O. W. Barlow, formerly assistant professor of pharmacology, Western Reserve University School of Medicine, \$125, to investigate circulatory effects of metrazol under conditions of anesthesia with ether as well as under the influence of hypnotics.

Grant 282: Arthur W. Grace, Department of Medicine, Cornell University Medical College, \$250, to investigate the effect of x-ray and Frei vaccine therapy in artificially inoculated lymphogranuloma inguinale in guinea-pigs.

Grant 283: Louis N. Katz, physiologist and director of cardiovascular research, Nelson Morris Memorial Institute for Medical Research, Michael Reese Hospital, Chicago, \$200, to investigate the action of drugs on coronary circulation.

Grant 284: Mary E. Collett, Flora Stone Mather College, Western Reserve University, \$60, to investigate the effect of the female sex hormone on the hot flashes and the basal metabolism of ovariectomized women.

Grant 285: Morton McCutcheon, associate professor of pathology, University of Pennsylvania School of Medicine, \$150, to investigate the chemotropism of leukocytes.

Grant 286: Vally Menkin, Department of Pathology, Harvard University Medical School, \$200, to investigate inflammation and tuberculosis in relation to immunity.

Grant 287: M. L. Tainter, professor of pharmacology, Stanford University School of Medicine, \$250, to investigate sympathomimetic amines.

Grant 288: Louis Goodman, Department of Pharmacology and Toxicology, Yale University School of Medicine, \$150, to investigate the effects of histidine injections on gastric physiology.

Grant 289: Carl C. Pfeiffer, Department of Pharmacology, University of Chicago, \$225, to investigate the possible amino acids present in the *Trypanosoma lewisi* antibody.

Grant 290: Edward J. Van Liere, acting dean and professor of physiology, West Virginia University School of Medicine, \$150, to investigate the effect of ephedrine on absorption from the small intestine.

Grant 291: J. F. McClendon, professor of physiologic chemistry, University of Minnesota Medical School, \$200, to investigate blood iodine in different types of goiter.

Grant 292: W. L. Bradford, associate professor of pediatrics, University of Rochester School of Medicine, \$150, to investigate the value of immune blood in whooping cough.

Grant 293: F. C. Koch, chairman Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250, to investigate provitamin D and vitamin D.

Grant 294: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Medicine, \$150, to investigate sex difference in white rats in tolerance to certain barbiturates.

Grant 295: Torald Sollmann, dean and professor of pharmacology and materia medica, Western Reserve University School of Medicine, and Albert Gilbert, Western Reserve University School of Medicine, \$150, to investigate the microscopic reactions of the bronchioles to drugs and anaphylaxis.

Grant 296: M. M. Wintrobe, Johns Hopkins Hospital, \$150, to investigate the blood picture of pernicious anemia.

Grant 297: Melvin Dresbach, Harvard University Medical School, \$250, to investigate the emetic effect of some of the digitalis bodies.

Grant 298: Kenneth W. Thompson, Department of Physiology, Yale University School of Medicine, \$200, to investigate the effects of the thyroid stimulating hormone pituitary; its relationship to other substances in the possible control of hyperthyroidism.

Grant 299: Everett Idris Evans, Department of Pharmacology, University of Chicago, \$150, to investigate prolactin.

Grant 300: Victor E. Hall, associate professor of biology, Stanford University School of Medicine, \$200, to investigate the mechanism of the inhibition of the metabolic stimulating action of dinitrophenol by exposure to low environmental temperatures.

Grant 301: Maurice Rosenthal, instructor in pathology, Long Island College of Medicine, \$200, to investigate radium poisoning.

Grant 302: Mary E. Collett, Flora Stone Mather College, Western Reserve University, \$200, to investigate the effect of the female sex hormone on the hot flashes and the basal metabolism of ovariectomized women.

Grant 303: Arnold De M. Welch, Department of Pharmacology, Washington University School of Medicine, \$200, to investigate the action of choline and betaine in the metabolism of fat.

Grant 304: Howard B. Lewis, professor of biological chemistry, University of Michigan Medical School, \$175, to investigate selenium salts.

Grant 305: Beverly Douglas, assistant dean and associate professor of surgery, Vanderbilt University School of Medicine, \$250, to investigate the pneumatic (transparent rubber jacket) system of treating extensive wounds.

The following grants were issued before Jan. 1, 1936. In some cases the grant has expired and an unexpended balance remains; or the work is not yet completed; or not yet published.

Grant 102: C. W. Greene, professor of physiology and pharmacology, University of Missouri, \$250, to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia.

Grant 119: Nicholas Kopeloff, research associate in bacteriology, New York State Psychiatric Institute and Hospital, \$100, to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies.

Grant 152: C. W. Greene, professor of physiology and pharmacology, University of Missouri, \$300, to investigate the reaction of the coronary system to drugs.

Grant 164: E. L. Jackson, associate professor of pharmacology, Emory University School of Medicine, \$200, to investigate the antagonism between sodium barbital and insulin.

Grant 194: Sarah A. Riedman, College of Physicians and Surgeons, Columbia University, \$200, to investigate the effect of a high fat or ketogenic diet on the susceptibility of animals to convulsions of experimental origin.

Grant 200: Walter Bauer, Massachusetts General Hospital, the Robert W. Lovett Memorial Foundation of the Harvard University Medical School, \$250, to investigate the anatomy and physiology of normal joints, with special reference to rheumatoid arthritis.

Grant 201: George R. Cowgill, associate professor of physiologic chemistry, Sterling Hall of Medicine, Yale University, \$250, to investigate vitamin B in relation to morphine addiction.

Grant 210: C. I. Reed, associate professor of physiology, University of Illinois College of Medicine, \$200, to investigate the use of viosterol 10,000 X in seasonal hay fever.

Grant 214: E. A. Park, professor of pediatrics, and J. A. Pierce, Johns Hopkins University School of Medicine, \$200, to investigate the reaction of cartilage.

Grant 219: Torald Sollmann, professor of pharmacology, and Harold N. Cole, associate professor of dermatology and syphilology, Western Reserve University School of Medicine, \$100, to investigate the epidemic factor in mercurial salivation.

Grant 221: John G. Reinhold, Department of Public Health, Philadelphia General Hospital, \$250, to investigate the action of aminocacetic acid (glycine) in progressive muscular dystrophy.

Grant 222: Eugene U. Still, assistant professor of physiology, University of Chicago, \$250, to investigate the changes in the metabolism of the pancreas.

Grant 223: Clinton H. Thienes, professor of pharmacology, and Lawrence E. Detrick, Department of Pharmacology, University of Southern California School of Medicine, \$200, to investigate withdrawal phenomena in morphine addicted animals.

Grant 228: Henry G. Barbour, associate professor of pharmacology and toxicology, Yale University School of Medicine, \$250, to investigate metabolism and water exchange in morphine habituation.

Grant 232: George R. Cowgill, associate professor of physiologic chemistry, Yale University School of Medicine, \$250, to investigate the heart in vitamin B deficiency.

Grant 236: Charles W. Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, \$100, to investigate the pharmacology of the so-called specific coronary dilator drugs.

Grant 238: Roy R. Kracke, professor of pathology, Emory University School of Medicine, \$250, to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits.

Grant 239: John R. Murlin, director and professor of physiology, University of Rochester School of Medicine, \$100, to investigate the absorption of insulin from the alimentary tract.

Grant 247: Arthur W. Grace, Department of Medicine, Cornell University Medical College, \$250, to investigate the use of antimonial compounds in the treatment of lymphogranuloma inguinale.

Grant 248: Fred C. Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250, to investigate the male sex hormone.

Grant 249: J. Percy Baumberger, associate professor of physiology, Stanford University, Department of Physiology, \$200, to investigate the occurrence and oxidation-reduction potential of pigments in tumor cells.

Grant 250: A. R. McIntyre, professor of pharmacology, University of Nebraska College of Medicine, \$100, to investigate the effects of the digitaloid bodies on the metabolism of dextrose by the cardiac musculature.

Grant 251: Dr. Bernard Fantus, professor of therapeutics, University of Illinois College of Medicine, \$100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin.

Grant 254: C. W. Edmunds, professor of materia medica and therapeutics, University of Michigan Medical School, \$200, to investigate the action of the drugs in the digitalis group in animals injected with diphtheria toxin.

Grant 257: O. W. Barlow, formerly assistant professor of pharmacology, Western Reserve University School of Medicine, \$150, to investigate analeptics versus barbiturates.

Grant 258: Claus W. Jungeblut, professor of bacteriology, Columbia University College of Physicians and Surgeons, \$250, to investigate vitamin C versus diphtheria.

Grant 259: O. W. Barlow, formerly assistant professor of pharmacology, Western Reserve University School of Medicine, \$100, to investigate the effects of parasympathetic drugs on the intestine.

Grant 261: Robert P. Walton, assistant professor of pharmacology, Tulane University of Louisiana School of Medicine, \$100, to investigate the absorption of drugs through the oral mucosa.

Grant 262: Victor E. Hall, associate professor of physiology, Stanford University, \$125, to investigate the mechanism of inhibition of the metabolic stimulating action of dinitrophenol by exposure to low environmental temperatures.

Grant 263: H. A. Shoemaker, associate professor of biochemistry and pharmacology, C. E. Clymer, professor of clinical surgery, and Henry H. Turner, University of Oklahoma School of Medicine, \$150, to investigate the blood cholesterol and iodine values in thyroid disease and their alteration by treatment.

Grant 264: Detlev W. Bronk, Johnson professor of biophysics, University of Pennsylvania School of Medicine, \$200, to investigate the action of various drugs on the autonomic centers.

Grant 266: F. C. Koch, chairman Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250, to investigate the antirachitic potency of irradiated sterols other than ergosterol.

Grant 268: Walter E. Hamburger, assistant professor of pharmacology, Western Reserve University School of Medicine, \$250, to investigate the mechanism of morphine action, with special reference to the excitement in cats.

Grant 269: Francis G. Blake, Sterling professor of medicine, and Marion E. Howard, Sterling professor of medicine, Yale University School of Medicine, \$50, to investigate the use of artificial pneumothorax in the treatment of lobar pneumonia.

Grant 270: Elaine P. Ralli, assistant professor of medicine, New York University College of Medicine, \$250, to investigate the effect of carotene on the blood vitamin A.

Grant 272: Ephraim Shorr, assistant professor of medicine, Cornell University Medical College, \$150, to investigate the value of various ovarian preparations.

Grant 273: Marston T. Bogert, professor of chemistry, Columbia University, \$100, to investigate the chemistry and pharmacology of the quinazoline group.

Grant 275: Roberta Hafkesbring, associate professor of physiology, Woman's Medical College of Pennsylvania, \$200, to investigate the effects of sodium barbital and other hypnotics.

Grant 276: Eugene Stanton, Department of Pharmacology, Western Reserve University School of Medicine, \$150, to investigate the addiction, tolerance and abstinence to various narcotics in animals, especially rats.

Grant 277: Katharine Henderson, Department of Pharmacology, Western Reserve University School of Medicine, \$300, to investigate the excretion of bismuth.

Grant 278: William H. Lewis Jr., assistant clinical professor of medicine, and Arthur C. de Graff, professor of therapeutics, New York University College of Medicine, \$150, to investigate the function of the heart in relation to age.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ending December 31, 1936

Reserve invested as at December 31, 1935.....	\$2,090,414.69	
Bonds Purchased (Cost).....	251,812.50	
	<u>2,342,227.19</u>	
Less Bonds Called.....	88,705.88	\$2,253,521.31
Balance for Investment December 31, 1935....	147,063.44	
Interest on Investments.....	80,969.60	
	<u>228,033.04</u>	
Less:		
Transfer to General Fund.....	\$150,000.00	
Investments Purchased	71,162.29	221,162.29
	<u>6,870.75</u>	
Invested and Uninvested Reserve as at December 31, 1936.....		<u>\$2,260,392.06</u>

DAVIS MEMORIAL FUND

Balance in Fund December 31, 1935.....	\$6,909.16
1936 Interest on Bank Balance.....	104.02
Total Fund as at December 31, 1936, on Deposit..	<u>\$ 7,013.18</u>

HERMAN L. KRETSCHMER, Treasurer.

AUDITOR'S REPORT

January 23, 1937.

To the Board of Trustees,

American Medical Association, Chicago, Illinois.

Dear Sirs:

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1936, and of the Income Account for the year 1936. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence and obtained information and explanations from officers and employees of the Association; we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enumerated in the index appended hereto.

In our opinion, based on such examination, the accompanying Balance Sheet and relative Income Account fairly present the position of the Association as at December 31, 1936, and the result of its operations for the year ended on that date, subject to the following qualifications and observations:

(1) The inventories of Materials, Supplies and Work in Progress in the amount of \$84,223.59 are stated in accordance with affidavits sworn to by responsible officials of the Association and have not been confirmed by us in any way.

(2) In accordance with the established practice of the Association, no provision has been made for (a) accrued interest on bonds, (b) membership dues unpaid, (c) accrued salaries and wages, and (d) accrued property taxes for the year 1936.

(3) Subscriptions paid in advance represent an estimated amount based on cash received for subscriptions for the year 1937, received in the month of December 1936. This conforms with the method used in prior years.

(4) Advance payments on publications represent an estimated amount of prepaid subscriptions to Hygeia \$125,789.24 plus \$12,116.99 received in advance for January advertising and Directory sales and service.

(5) During the year the Association completed the remodeling of the main building and the addition of two floors; and at December 31, 1936, all of the buildings, including two storage buildings, the cost of which had been previously written off, were appraised by Holabird and Root, resulting in an increase in value of \$124,481.59 over the book value at December 31, 1936, which was placed on the books at that date. In accordance with the previous practice of the Association depreciation has been computed at the rate of 2½% on the main building and on machinery and equipment at the rate of 5% on the diminishing book values prior to the appraisal.

We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, acting as Attorneys for the Association, stating that at December 31, 1936, there were two lawsuits pending against the Association, one filed by Dr. Jean Paul Fernel in the amount of \$1,000,000.00 for alleged libel, and the other filed by Herbert Edwin Soule, Helen B. Ickler and Julius Ickler to enjoin the Association from performing certain

functions specified in the complaint. The attorneys stated in their letter that it was their opinion they would eventually defeat both suits. We have also received a certificate from an official of the Association stating that at December 31, 1936, there were no contingent liabilities except the lawsuits here referred to.

Fidelity insurance is carried against the undermentioned officers and employees of the Association in the amount here stated:

Dr. Olin West, General Manager.....	\$10,000.00
Dr. Herman L. Kretschmer, Treasurer.....	10,000.00
E. A. Hoffman, Cashier.....	10,000.00
J. E. Hartigan, Assistant Cashier.....	2,000.00
Sundry Employees (eight, \$1,000.00 each).....	8,000.00
Total Fidelity Insurance.....	<u>\$40,000.00</u>

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet, as at December 31, 1936.....	"A"
Income Account, for the year ended December 31, 1936....	"B"
Journal Operating Expenses, for the year ended December 31, 1936	Schedule "1"
Association and Miscellaneous Expenses, for the year ended December 31, 1936.....	"2"

EXHIBIT "A"

BALANCE SHEET AS AT DECEMBER 31, 1936

ASSETS:

Property and Equipment, less depreciation:

Real Estate at less than cost,* and Buildings at Reproduction Cost New less Depreciation, as Appraised by Holabird and Root at December 31, 1936..... \$1,187,773.98

Equipment (at Cost, less Depreciation):

Machinery.....	\$ 101,335.17
Type and Metal.....	13,780.30
Furniture and Equipment.....	85,733.72
Chemical Laboratory.....	6,983.40
	<u>207,832.59</u>

Total Property and Equipment..... 1,395,606.57

Investments (at cost):

U. S. Government Securities.....	1,355,098.06
Railroad, Municipal and Utility Bonds....	898,423.25
	<u>2,253,521.31</u>

Cash held by Treasurer for Investment..... 6,870.75
Cash in Banks and on Hand..... 253,038.78

Accounts Receivable:

Advertising.....	48,777.56
Co-operative Medical Advertising Bureau.....	10,966.26
Reprints.....	3,188.61
Miscellaneous.....	13,006.81
	<u>75,939.24</u>

Inventories of Materials, Supplies and Work in Progress..... 84,223.59
Expenditures on Publications in Progress..... 41,707.16
Prepaid Expenses—Insurance, etc..... 11,782.57

Total \$4,122,689.97

* Cost value of Real Estate was reduced \$40,000.00 as of December 31, 1933, by official action of Board of Trustees. This action was reported to House of Delegates.

LIABILITIES:

Accounts Payable:

Building Addition and Remodeling.....	\$ 23,013.06
Co-operative Medical Advertising Bureau.....	11,037.53
Miscellaneous.....	404.54
	<u>34,455.13</u>

Subscriptions paid in Advance..... 163,036.42
Advance Payments on Publications..... 137,906.23

Net Worth:

Association Reserve Fund.....	\$ 350,000.00
Building Reserve Fund.....	250,000.00

Capital Account:

Amount thereof as at December 31, 1935.....	\$2,549,698.76
Building Reserve Fund Reallocated	400,000.00
Net Income for the year ended December 31, 1936	113,111.84
	<u>3,062,810.60</u>

Increased value of Building per appraisal..... 124,481.59

Net Worth as at December 31, 1936..... 3,787,292.19

Total \$4,122,689.97

EXHIBIT "B"

INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1936

JOURNAL:

Gross Earnings:

Fellowship Dues and Subscriptions.....	\$ 638,243.18
Advertising.....	780,299.01
Jobbing.....	96,770.72
Reprints.....	2,416.19
Books.....	14,700.17
Insignia.....	7,034.23
Miscellaneous Sales.....	6,593.65
Interest.....	4.00
Recoveries on Bad Accounts and Gain from Sale of Equipment	<u>1,106.87</u>

Gross Earnings from Journal..... 1,547,218.23
Operating Expenses—Schedule "1"..... 909,417.95

Net Earnings from Journal..... 637,800.28

Miscellaneous Income:

Rents.....	\$ 1,200.00
Sundry Publications.....	5,393.68
	<u>6,593.68</u>

Association Income:

Income from Investments.....	80,844.60
Miscellaneous Income.....	8,284.58
	<u>89,129.18</u>

Gross Income..... 733,523.14
Association Expenses—Schedule "2"..... 411,028.93
Miscellaneous Expenses—Schedule "2"..... 209,382.37

Net Income \$ 113,111.84

SCHEDULE "1"

JOURNAL OPERATING EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1936

Wages and Salaries.....	\$443,693.17
Editorials, News and Reporting.....	11,236.76
Paper—Journal Stock.....	205,158.16
Paper—Miscellaneous.....	3,764.21
Electrotype and Engravings.....	14,520.33
Binding.....	616.11
Ink.....	5,062.59
Postage—First Class.....	35,964.10
Postage—Second Class.....	56,158.98
Journal Commissions.....	14,408.65
Collection Commissions.....	647.58
Discounts.....	27,909.16
Express and Cartage.....	5,640.23
Exchange.....	3,006.09
Office Supplies.....	2,444.02
Telephone and Telegraph.....	4,017.25
Office Jobbing.....	12,693.10
Power and Light.....	10,177.95
Factory Supplies.....	11,182.37
Repairs and Renewals—Machinery.....	4,906.04
Miscellaneous Operating Expenses.....	<u>25,640.10</u>

Total Journal Operating Expenses before Provision for Depreciation..... 898,646.95

Depreciation on Equipment (Computed on diminishing balances):

Machinery.....	% 5	\$ 5,333.43
Furniture and Equipment.....	% 5	4,082.18
Factory Equipment.....	% 5	430.12
Type.....	% 5	318.98
Metal.....	% 5	<u>406.29</u>

Total Journal Operating Expenses..... \$909,417.95

SCHEDULE "2"

ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1936

Association Expenses:

Association.....	\$105,556.23
Health and Public Instruction.....	29,246.21
Pharmacy and Chemistry.....	44,376.55
Chemical Laboratory.....	25,728.47
Medical Education and Hospitals.....	76,761.56
Therapeutic Research.....	4,794.14
Legal Medicine and Legislation.....	36,279.00
Bureau of Investigation.....	17,457.63
Bureau of Medical Economics.....	28,772.00
Council on Foods.....	16,181.63
Physical Therapy.....	14,765.76
Bureau of Association Exhibits.....	10,670.94
Laboratory Depreciation (5% on diminishing balances)....	<u>367.55</u>

Total Association Expenses..... \$411,022.97

Miscellaneous Expenses:

Insurance and Taxes.....	\$ 16,956.41
Legal and Investigation.....	26,582.85
Building Expenses.....	39,442.16
Building Depreciation (2.5% on diminishing balances)....	14,637.35
Fuel.....	7,761.12
Sundry Publications.....	<u>103,962.47</u>

Total Miscellaneous Expenses..... \$209,382.37

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

During the past year the usual number of requests for advice on ethical questions, information on economic subjects and complaints concerning both have been handled by the Council with varying degrees of satisfaction to the inquirers. Economic subjects invariably involve ethical questions and it is apparent that in many instances, somewhere behind the correspondent's problem, is an effort, sometimes on his part and sometimes on the part of others, to evade the principles of conduct established for our guidance. These principles have proved broad and comprehensive enough to cover satisfactorily any situation that has arisen if the effort to follow the principles has honestly been made; but because this has not always been the case the Judicial Council deems it expedient to clarify by certain changes and additions, which will later be offered as amendments, some paragraphs in our printed Principles of Medical Ethics.

Article VI refers to "Compensation." Section 2 of that article is headed "Contract Practice." The first paragraph of the section reads as follows:

It is unprofessional for a physician to dispose of his services under conditions that make it impossible to render adequate service to his patient or which interfere with reasonable competition among the physicians of a community. To do this is detrimental to the public and to the individual physician, and lowers the dignity of the profession.

To one seeking only high ideals in medical practice, this statement would be taken as covering all medical practice; but to one endeavoring to justify a practice not up to the standard of such an ideal, the interpretation may and has been made that because the section is captioned "Contract Practice" and has to do principally with that subject it has no application except as to contract practice.

In the same section, contract practice is defined as follows:

By the term "contract practice" as applied to medicine is meant the carrying out of an agreement between a physician or a group of physicians, as principals or agents, and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or a fixed rate per capita.

If it is contract practice to care for a group or class of individuals for a definite sum or a fixed rate per capita as a basis of payment for the group, it is equally contract practice if the payment is based on an agreed fee schedule.

In the same section, the next paragraph enumerates certain features or conditions which, if present, make a contract unethical, among which is "5. When free choice of a physician is prevented." The phrase "free choice of physician" is more and more frequently used and there is a general understanding of what the phrase means. Actually no person can have an absolutely free choice for many reasons, and if his freedom of choice is not absolute then it is not free but limited. Chapter II, section 3, of Principles of Medical Ethics states: "A physician is free to choose whom he will serve." Therefore the physician whom the patient chooses may decline to serve when he is chosen. Or the chosen physician may be unavailable for many reasons. As the Judicial Council has often to interpret this phrase, it seems proper to define the term as applied to contract practice and include the definition in the paragraph devoted to that subject. An amendment will be presented at the proper time for action by the House.

RULES OF COUNTY SOCIETIES

The Judicial Council notes a tendency which, while not widespread, appears to be growing, of county societies establishing certain "rules of conduct" to control membership and basing disciplinary measures on violation of such rules. These "rules of conduct" are usually in the form of specific laws forbidding certain defined actions. They are based on the principles enunciated in the Principles of Medical Ethics, which principles in all instances so far coming to the attention of the Council are sufficient in scope to cover the situations sought to be corrected. Such rules, usually drawn to meet a particular condition that has caused an inflamed sentiment against certain individuals or groups, are adopted hastily with little consideration of anything except to correct the situation immediately at hand. No rules of conduct adopted by county medical societies

have as yet caused embarrassment to the Judicial Council in its endeavors to protect equitably membership in the American Medical Association. The question is likely to arise soon, however, as to whether a member of the American Medical Association may be deprived of membership for infraction of a rule of conduct not actually involving unethical conduct as presented in the Principles of Medical Ethics. The Judicial Council senses danger in the development of two ethical standards of possible injustice to the membership of this organization in the adoption of rules of conduct designed by county societies to supplement the principles of medical ethics established by the House of Delegates.

COOPERATION WITH COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The 1936 House of Delegates instructed "The Council on Medical Education and Hospitals together with the Judicial Council to formulate a plan whereby all those associated in the delivery of medical service be included in the investigation of hospitals for classification and that approval be based in the future on ethical practices in the institution as well as its scientific work." Consequently the Judicial Council met with the Council on Medical Education and Hospitals in February this year and after thorough discussion presented the basis of a plan for the desired cooperation of the two councils. The problem, which involves many difficulties, will require some time for its solution.

VOTING RIGHTS

The Judicial Council desires to bring to the attention of the House of Delegates the practice of constituent associations whereby officers and council members become *ex officio* or active members of the house of delegates with the right to vote. The house of delegates is the legislative body of each association and in many the council is the executive body acting for the house of delegates between annual sessions. The state society council reports its interim activities to the state society house of delegates for approval at the annual session. It seems incongruous for members of the council to act during the year, report their activities to the house, and then seated as delegates vote in judgment on their own previous actions. State society officers and council members should sit with the house of delegates, but the Judicial Council questions the propriety of their recognition as voting members. Perhaps no great harm ordinarily is done, but if the council is numerically large in proportion to the number of elected delegates its members might dominate the house and interfere with action desired by the membership at large. The Judicial Council has reason to believe that such misrepresentation has occurred. In bringing such situations to the attention of the House of Delegates it is the hope of the Judicial Council that corrective action may be taken by constituent associations.

TIME LIMIT ON APPEALS

During the past year the Judicial Council has tried and rendered decisions in four cases appealed to it from decisions of state associations. Two appeals were sustained and two were denied. A fifth appeal was denied a hearing because of refusal on the part of the appellant to comply with the procedure provided in the county society by-laws. It is the experience of the Council that as a rule state society by-laws place no limit on the time within which appeals must be made from decisions of county societies. The By-Laws of this association set no limit. As a consequence, some appeals come to the Judicial Council as long as two or three years after the first decision is rendered, when the production of evidence has become very uncertain and often very difficult. The Council doubtless has power to make rules governing its own procedure but believes it to be proper and advisable to incorporate in the By-Laws a definite limit within which appeal to the Judicial Council from decisions of constituent associations must be made. An amendment will be offered providing for a six months limit.

AMENDMENTS

At the 1936 session, certain amendments to the By-Laws recommended to the House were approved by the proper reference committees but through an oversight were not formally

adopted by the House. These amendments will be presented for formal action during this session.

The Constitution and By-Laws are in confusion with respect to the election of the President-Elect. Article 6, section 1, names the general officers, including the President and President-Elect. Section 2 of the same article provides that these officers be elected annually. The fact is we do not elect a President but do elect a President-Elect, who becomes President one year later at the time of his installation. The By-Laws, chapter IV, section 8, providing for the installation of the President, also refer to "the annual session following that at which he was elected." The Constitution and By-Laws should be changed to conform to the practice which the House of Delegates has followed for more than ten years, and proposed amendments to effectuate such changes will be offered at the proper time. The amendment to the Constitution cannot be accomplished until the 1938 session but there appears to be no reason why the amendment to the By-Laws cannot be made at the present session, as it will only follow the procedure which has been customary in the past and has not heretofore been called into question.

GEORGE EDWARD FOLLANSBEE, Chairman.

LLOYD NOLAND.

JOHN H. O'SHEA.

EDWARD R. CUNIFFE.

WALTER F. DONALDSON.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

1. The first phase of the survey of Medical Education in the United States and Canada, authorized by the Board of Trustees in February 1934, has been successfully completed. Eighty-nine institutions have filed reports and have been visited by the Council's representative in company with another member of the Council, the Association of American Medical Colleges or the Federation of State Medical Boards. Three medical schools and the Associated Colleges of Osteopathy declined to report or to permit an inspection by the Council.

In response to the urgent requests of many of the schools surveyed, the Council is preparing confidential reports in graphic form which will be presented to each school as soon as completed, probably by the time of the Atlantic City session. From these pattern maps, officers of an institution may learn where their school stands in relation to other schools with respect to about 100 items used as a basis for comparison.

The survey has revealed certain weaknesses in the organization and administration of a number of schools. Where unsatisfactory conditions have been found, a warning has been given that improvement must be made within a limited time if the Council's approval is to be continued. The stimulating effect of such counsel is already noticeable. Many of the schools, however, will need to be revisited within the next two years in order to learn just how much is being accomplished.

2. In the United States there are ten schools which offer only the first two years of the medical curriculum. For the most part these schools are located in smaller communities where clinical material is so scarce that satisfactory teaching of clinical medicine would be utterly impossible. In many instances, facilities do not exist for the satisfactory teaching of such subjects as physical diagnosis and gross pathology, which involve the use of clinical material. The same is true of the introductory courses in medicine and surgery, which commonly form a part of the second year schedule. Prolonged study of the problem thus presented has led to the adoption of the following policy:

SCHOOLS OF THE MEDICAL SCIENCES

Following the recent survey of the medical schools it was decided that, effective July 1, 1939, the Council will publish a list of schools which teach acceptably gross and microscopic anatomy, biochemistry, physiology, pharmacology, bacteriology and pathology, even though they do not offer a full course leading to a medical degree.

The acceptance of courses involving the use of clinical material shall be left to the discretion of the faculties which admit to advanced standing students transferring from approved schools of the medical sciences.

Surveys of the clinical courses and facilities will be made by the Council and reported to the individual medical schools on request.

3. There remain in this country five unapproved medical schools. One of these admitted no new students last fall and has declared its intention to close as soon as the students now enrolled can be graduated, presumably in 1939.

4. This year, again, the Annual Census of Hospitals met with a response from more than 96 per cent of all registered hospitals and this response represented around 99 per cent of the entire bed capacity. All other agencies, including the census and other departments of the federal government, have failed to get any better than a 70 per cent response. This loyalty on the part of hospitals to the American Medical Association places the Association in a unique position to do for hospitals things which other agencies are not in position to do.

On March 27, 1937, there were 6,189 hospitals, and of these 939 were approved for internships and residencies. These approved hospitals admitted more patients than all the remaining 5,250 hospitals; thus, more than half of all hospital patients are in institutions approved for the formal training of physicians. The remaining 5,250 hospitals are registered but not approved for intern and residency training. One thousand, six hundred and thirty-eight of these are approved as meeting the minimum standards of the American College of Surgeons and have been inspected by the college. This leaves 3,612 hospitals not approved by the College of Surgeons or the Council. No other agency has inspected them. It is safe to assume that little help is given them toward maintaining standards, outside of the publication and distribution of the "Essentials of a Registered Hospital" and the information gleaned at hospital conventions. The Council's staff, in addition to the 939 approved hospitals, some 200 schools for laboratory technicians, thirty-five schools for physical therapy technicians and the schools for occupational therapists, has managed in the last two or three years to see 600 of these smaller hospitals. Even so, there remain over 3,000 hospitals in "no man's land" so far as inspection and regulation by some national authority is concerned.

As a result of the recent census of hospitals, the Council was able to publish in the Hospital Number of THE JOURNAL the approximate extent of overcrowding in the state mental hospitals. Figures covering 247 of these institutions show that only ninety-three were reported free from overcrowding. The excess of the average number of patients over the rated capacity was less than 15 per cent in sixty-one of these hospitals, from 15 to 30 per cent in forty-six, from 30 to 50 per cent in twenty-four and over 50 per cent in four. In states where more adequate facilities have been provided, a higher discharge rate and a larger number of paroles have resulted.

On the other hand, general hospitals are shown to have been overbuilt. Not only is the average occupancy low, but in some general institutions there are whole buildings, parts of buildings, or floors that have never been utilized. This condition suggests that it would be wise for physicians to investigate carefully before lending their support to campaigns for additional hospital facilities.

5. The Council has also received invaluable assistance from the officials of county and state medical societies in the investigation of hospitals beyond the reach of our inspections. The Council is seeking to make still more helpful this cooperation with constituent societies. The Council has found it of mutual advantage to work with certain departments of the federal government, particularly the United States Public Health Service, the Bureau of the Census, the Department of the Interior, and the Children's Bureau. Such activities extend the usefulness of the Council and gains for the Association some measure of friendly interest and appreciation.

The services of 10,000 interns and residents were examined and prepared for recording in the biographic file.

Around 450 cases of apparent broken internship and residency contracts were investigated.

Due to the activities of the Council, the percentage of autopsies performed in hospitals approved for intern training has steadily increased. In 1926, 249 hospitals reported more than 15 per cent autopsies; 329 less than 15 per cent. Correspond-

ing figures for 1935 were: 692 hospitals reported more than 15 per cent autopsies; eleven less than 15. The number reporting better than 30 per cent during the same period increased from 103 to 355.

6. In cooperation with the Judicial Council, efforts are being made to secure information concerning the tendency of some hospitals to engage in the practice of medicine through the device of hiring physicians to care for patients while the hospital itself collects the fee for the services rendered.

7. At the Milwaukee session the Council was authorized to approve such special examining boards as conform to the standards formulated by the Council. The following boards have been so approved:

American Board of Dermatology and Syphilology.
American Board of Internal Medicine.
American Board of Obstetrics and Gynecology.
American Board of Orthopaedic Surgery.
American Board of Pediatrics.
American Board of Psychiatry and Neurology.
American Board of Radiology.
American Board of Urology.

8. The annual review of medical education was published in THE JOURNAL, Aug. 29, 1936.

The list of "Approved Colleges of Arts and Sciences and Junior Colleges" was revised and reprinted in January 1937.

The Pathology Number of THE JOURNAL, Oct. 24, 1936, contained along with other material a list of approved pathologists.

The Hospital Number of THE JOURNAL, March 27, 1937, contained an unusually complete summary of existing conditions in hospitals throughout the United States.

The State Board Number of THE JOURNAL, April 24, 1937, contained information concerning the number of physicians licensed after examination and by endorsement, the number who represent actual additions to the profession, the number of unapproved graduates and foreigners licensed with or without examination, and the latest information concerning state medical licensure and endorsement, and the examinations of the National Board of Medical Examiners and the basic science boards.

At the Annual Congress on Medical Education and Licensure, Feb. 15 and 16, 1937, Dr. Ray Lyman Wilbur, in his chairman's address, cogently presented the fundamental reasons for the position of leadership assumed by the American Medical Association in the field of medical education. At the same time Dr. Herman G. Weiskotten, who has been engaged in the survey of medical schools, gave a most instructive summary of his impressions.

9. Because of the establishment of examining boards in radiology and pathology, the Council will discontinue the maintenance and publication of its lists of physicians specializing in these branches.

10. The Council is now planning a study of graduate medical education in the United States. This will include the systematic courses offered in schools, hospital residencies and other types of apprenticeship, continuation courses for those in practice and the educational programs of medical societies. To carry out this program and at the same time discharge existing responsibilities will require an increase in the Council's staff, provision for which has already been made by the Board of Trustees.

11. The Council is contributing a certain amount of material for the anesthesia exhibit which is being prepared under the direction of the Committee on Scientific Exhibit.

Respectfully submitted.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS.

RAY LYMAN WILBUR, Chairman.
CHARLES E. HUMISTON.
FREDERIC A. WASHBURN.
J. H. MUSSEY.
FRED MOORE.
REGINALD FITZ.
FRED W. RANKIN.
WILLIAM D. CUTTER, Secretary.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

The Council on Scientific Assembly held its usual official meetings during the year and has given consideration to such matters as have been brought to its attention.

The regular annual Conference of Section Secretaries with the Council was held in Chicago Dec. 4, 1936, for the purpose of planning the scientific program for the Atlantic City session.

The General Scientific Meetings, held on Monday and Tuesday of the week of each annual session for several years past, have attracted greater interest each year, and there has been a general increase in attendance. The program of the General Scientific Meetings will be somewhat different this year in that the session on Tuesday morning will be divided into two sections, one dealing with subjects in the field of general medicine and the other with surgical subjects. In cooperation with the secretary of the Section on Dermatology and Syphilology and of the Section on Preventive and Industrial Medicine and Public Health, the Council has arranged for a symposium on syphilis to be presented as a part of the program of the General Scientific Meetings on the afternoon of Tuesday, June 8.

At the Kansas City session in 1936 the Reference Committee on Sections and Section Work offered a recommendation to the House of Delegates that the By-Laws be so amended as to preclude the participation of an individual Fellow in the discussion of more than one paper at any Scientific Assembly.

Section 13 of chapter XIV of the By-Laws now reads as follows: "A Fellow shall present no more than one paper at any Scientific Assembly." The Council on Scientific Assembly is of the opinion that this provision of the By-Laws is wise if it is made to apply specifically to the actual presentation of papers before the scientific sections but feels that this by-law should not be made to apply to the programs of the General Scientific Meetings, and that it should not debar an individual Fellow from participation in the discussions of an individual paper even though he has himself presented a paper before a section or has contributed to the program of the General Scientific Meetings. Not infrequently, papers dealing with entirely new scientific work are presented as parts of section programs, and the Council on Scientific Assembly is of the opinion that, if the By-Laws should be so amended as to make it impossible for one who is particularly well qualified to discuss an important scientific paper to enter into such discussion because his name has appeared on the program in connection with some other paper, the value of such presentations might be seriously lessened. In a number of instances it has seemed desirable to have as contributors to the program of the General Scientific Meetings Fellows who have accepted places on section programs, because they are thoroughly well qualified to discuss subjects that are of important, immediate interest to the rank and file of the profession. For these reasons particularly, the Council on Scientific Assembly respectfully recommends to the House of Delegates that the proposed amendment to the By-Laws submitted at the Kansas City session be not adopted.

The official program of the Atlantic City session is submitted as a part of the report of the Council.

Respectfully submitted.

IRVIN ABELL, Chairman.

FRANK H. LAHEY.

JAMES E. PAULLIN.

ALFRED A. WALKER.

J. C. FLIPPIN.

J. H. J. UPHAM, President-Elect.

MORRIS FISHBEIN,
Editor, THE JOURNAL.

OLIN WEST, Secretary.

} Ex officio.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 1, 1937

OBITUARIES OF PHYSICIANS PUBLISHED IN 1936

A total of 3,581 obituaries of physicians was published in THE JOURNAL during 1936 including 3,475 of the United States, as compared with 3,319 in 1935. The number includes also 106 Canadians, 3 who died in the Philippine Islands, 2 each in Africa, Alaska, England, India and South America, and 1 each in China, Costa Rica, Hawaii, Panama and Puerto Rico. The obituaries of 103 women physicians were published, as compared with 83 in 1935. The number of graduates of medical schools in the United States for the fiscal year ended June 30, 1936, was 5,183. Therefore the net increase in the medical profession is 1,708.

Ages.—The average age at death of those classified as of the United States was 64.5, as compared with 64.2 in 1935. Thirty-six physicians died between the ages of 25 and 29, 65 between 30 and 34, 69 between 35 and 39, 80 between 40 and 44, 190 between 45 and 49, 262 between 50 and 54, 423 between 55 and 59, 525 between 60 and 64, 512 between 65 and 69, 460 between 70 and 74, 424 between 75 and 79, 254 between 80 and 84, 115 between 85 and 90, and 49 between 90 and 95; 10 were more than 95.

Causes of Death.—Heart disease was again the leading cause of death, as for the last several years. Some contributory causes are included. For example, when a report of the cause of death gave "chronic nephritis and heart disease," it was published as such in THE JOURNAL and was recorded on the statistical charts under both diseases. Of the causes of death from heart disease, endocarditis or myocarditis was specified in 404 cases, coronary thrombosis in 213, angina pectoris in 105 and pericarditis in 1. Other diseases of the heart caused 652 deaths. Pneumonia was the second most frequent cause with 426 deaths, of which 110 were specified as bronchopneumonia. Cerebral hemorrhage was the third most frequent cause, with 367 deaths; 21 additional deaths were reported as due to paralysis. Fourth on the list was arteriosclerosis, with 352 deaths. Of 306 deaths reported as due to cancer, the stomach and liver were affected in 68 cases.

the prostate in 52, the intestine in 23, the female genital organs in 1, the buccal cavity in 1; in 160 cases the part affected was not specified. Nephritis caused 206 deaths, of which 18 were specified as acute nephritis. The number of cases in which embolism or thrombosis exclusive of coronary thrombosis was reported was 106, hypertension 87, diabetes mellitus 79, uremia 73, other diseases of the genito-urinary system 73, tuberculosis of the respiratory system 58, other forms of tuberculosis 3, cirrhosis of the liver 42, diseases of the prostate 40, senility 36, influenza 31, appendicitis 30, ulcer of the stomach and duodenum 28, intestinal obstruction 26, septicemia 24, hemorrhage and paralysis agitans 22 each, peritonitis 21, leukemia 16, meningitis 15, arthritis 14, diseases of the digestive system 14, cholecystitis 13, erysipelas 11, asthma 10, biliary calculi and brain tumor 9 each, aneurysm and pernicious anemia 8 each, gangrene 7, agranulocytosis, bronchitis, heat prostration and mastoiditis 6 each, cellulitis, diverticulitis, encephalitis, hernia, Hodgkin's disease, diseases of the liver and streptococcal infection 5 each, pancreatitis, scarlet fever, sinus infection and other diseases of the respiratory system 4 each, acute articular rheumatism, alcoholism, benign tumor, diseases of the veins, emphysema, empyema, multiple sclerosis, osteomyelitis, dementia paralytica and streptococcal sore throat 3 each, and Addison's disease, bacillary dysentery, carbuncle, malaria, multiple neuritis, otitis media, pleurisy and softening of the brain 2 each. Among other causes of death, each given in one case, were amebic dysentery, amyloidosis, brain abscess, cerebral atrophy, cerebral infarct, cerebral sclerosis, diphtheria, disseminated sclerosis, furunculosis, glaucoma, infection of the tongue, intestinal ulcer, Malta fever, multiple myeloma, osteitis fibrosa, Paget's disease, paralytic ileus, pellagra, pharyngitis, poliomyelitis, regional ileitis, ruptured coronary artery, ruptured gallbladder, scurvy, splenic infarction, splenomegaly, stricture of the esophagus, sunstroke, thrombo-angiitis obliterans, tonsillitis, traumatic epilepsy, typhoid, typhus, and Vincent's angina.

Accidental Deaths.—One hundred and eighty-two physicians died as the result of accidents in 1936, compared with 120 in the previous year. Automobile accidents accounted for 86 deaths, 15 more than in 1935. In 1936, deaths from falls numbered 37, drowning 9, injuries received in diving 2, shooting 8, overdoses of medicine 7, burns 6, carbon monoxide gas and train accidents 3 each, airplane accidents 2, and poisoning, street car accident, gas and overdose of anesthetic 1 each. In several cases unexplained fractures were given as causes of death. One was killed in Ethiopia in a bomb explosion, one was suffocated in a fire, and one was electrocuted by contact with the wires to an x-ray machine. One died as the result of the injury received when his lungs were pierced by surgical scissors in a fall.

Suicides and Homicides.—Suicide was the cause of 59 deaths in 1936, 12 more than in 1935. Shooting

accounted for 30 of these deaths, hanging and poisoning 5 each, carbon monoxide poisoning and incised artery 4 each, overdoses of morphine, jumping and scalpel wounds 2 each, chloroform and drowning 1 each. In the remaining cases the method was not mentioned. There were 4 homicides.

Civil Positions.—Among the decedents were 235 who were or had been teachers in medical schools, 426 who served in the World War, 27 veterans of the Civil War and 52 veterans of the Spanish-American War. One hundred and fifty-nine were or had been health officers, 119 members of boards of education, 98 members of boards of health and 20 members of state boards of medical examiners. There were 61 coroners, 50 mayors, 46 members of state legislatures, 27 authors, 26 bank presidents, 22 members of city councils, 22 pharmacists, 15 medical missionaries, 12 postmasters, 8 dentists, 8 editors, 7 clergymen, 4 police surgeons, 2 justices of the peace and 1 judge. There were 17 members of the U. S. Army Medical Corps, 13 of the U. S. Navy Medical Corps, 15 of the U. S. Public Health Service, 6 of the U. S. Veterans' Administration and 2 of the Indian Medical Service.

Association Officers.—Obituaries of physicians who were or had been officers of the American Medical Association included the obituary of Dr. James Tate Mason, who was President at the time of his death, 1 past president, 3 vice presidents, 2 former trustees, 15 section officers and 4 members of councils. Thirty-two members or former members of the House of Delegates died during the year. Thirty-four presidents or former presidents and 10 secretaries of the state societies were included among the officials.

FEDERAL REGULATION OF MEDICINAL USE OF CANNABIS

The Secretary of the Treasury has procured the introduction in the House of Representatives of a bill, H. R. 6385, imposing an occupational excise tax on certain dealers in cannabis, a transfer tax on certain dealings in cannabis, and providing for safeguarding the revenue therefrom by registry and recording. The primary purpose of the bill is to regulate and control the production and use of cannabis by federal authority, in order to prevent cannabis addiction. It is proposed to resort to the federal taxing power, as was done in the enactment of the Harrison Narcotic Act, and then, under regulations that in theory are necessary for the collection of the tax, to control the production, manufacture and use of cannabis and its compounds and derivatives for all purposes whatever. The persons whom it is proposed to tax and the rates of taxation are:

Physicians, dentists, veterinary surgeons and other practitioners, \$1 a year or fraction thereof.

Teachers, analysts and research workers who use cannabis or its compounds or derivatives in laboratories, \$1 a year or fraction thereof.

Wholesale and retail druggists and others who are not physicians, dentists, veterinary surgeons or other practitioners, nor importers, manufacturers, compounders or producers, \$15 a year.

Importers, manufacturers and compounders, \$50 a year.

Producers, \$25 a year.

These taxes are to be payable without regard to the payment of analogous taxes under the Harrison Narcotic Act. They will probably amount to upward of a million dollars a year.

Certainly cannabis addiction cannot be traced to the medicinal use of cannabis. The medical profession today seldom dispenses or prescribes the drug. Many physicians will, however, probably feel it necessary to preserve their right to use it if and when circumstances make it advisable to do so and accordingly will feel compelled to pay the tax. Pharmacists presumably seldom have calls for cannabis, but they must nevertheless be prepared to dispense it when a call does come, so they will have to pay the tax. For the same reason the wholesale druggist and many manufacturers of drugs will feel compelled to pay. The million dollars to be collected annually by the federal government will no doubt be charged as a part of the cost of practicing medicine, dentistry and pharmacy. So also will the expense of record keeping and reporting, called for under the bill. All this will in the end be paid for by the patient and thus go to swell the cost of sickness. Thus the sick and injured must contribute toward federal efforts to suppress a habit that has little or no relation to the use of cannabis for medicinal purposes and that is already within the jurisdiction of the several states.

Without resorting to taxation, the federal government has complete authority over cannabis and its compounds and derivatives in interstate and foreign commerce and in the mails. It can control them in the territories and the District of Columbia and in other places under the exclusive jurisdiction of the federal government. It can give every state complete control over cannabis and its compounds and derivatives the moment they cross the state boundary, to supplement authority constitutionally vested in the state. Forty-six states and the District of Columbia already have laws relating to such drugs. If these laws are not adequate, or if they are not adequately enforced, the Secretary of the Treasury is under a statutory duty to cooperate with the states that are inadequately policed, to bring about the necessary improvement in the situation.

The proposed federal venture into the intrastate control of cannabis hardly seems to be justified by experience under the Harrison Narcotic Act. After more than twenty years of federal effort and the expenditure of millions of dollars, the opium and cocaine habits are still widespread. The best efforts of an efficient bureau of narcotics, supplemented by the efforts of an equally efficient bureau of customs, have failed to stop the unlawful flow of opium and coca leaves and their compounds and derivatives, on which the continuance and spread of narcotic addiction depends. The best efforts

of the Public Health Service to find means for the prevention and cure of narcotic addiction have not yet accomplished that end. Two federal narcotic farms, operating under the supervision and control of the U. S. Public Health Service, cannot yet guarantee the cure of narcotic addiction. What reason is there, then, for believing that any better results can be obtained by direct federal effort to suppress a habit arising out of the misuse of such a drug as cannabis? Certainly it is almost as easy to smuggle into the country and to distribute as are opium and coca leaves. Moreover, it can be cultivated in many parts of the United States and grows wild in field and forest and along the highways in many places.

All rights that the government aims to obtain under the pending bill, at a cost of upward of a million dollars annually, can be obtained just as well and without levying any such taxes as are now proposed, by amendments to the Harrison Narcotic Act! Unless the bill has implications that have not yet been discovered, there is no reason why they should not yet be so obtained, if they are to be granted at all. The proposed levying of an additional tax on the agencies engaged in the treatment of the sick is definitely unwarranted.

CAUSATIVE FACTORS IN ERYTHEMA NODOSUM

Erythema nodosum, dermatitis contusiformis, or nodular fever of Lendon, named by the French physician Robert Willan in 1799, has been generally considered in continental Europe to be of tuberculous origin. In England and in this country it has also been found to be associated with streptococcic sore throat, acute endocarditis, influenza, measles, chickenpox, ulcerative colitis, lymphogranuloma venereum, gonococcic septicemia, abscesses about the roots of the teeth, and following the ingestion of iodides. Many consider the condition a specific acute infectious disease. Moon and Strauss¹ described an organism of the genus *Corynebacterium* which they thought responsible for the disorder. Rosenow described a diphtheroid organism which he isolated from several patients and which the Philadelphia workers thought might be identical with their own.

Spink² recently studied ten patients with erythema nodosum and reported on 133 patients treated at the Boston City Hospital. Skin lesions were excised from patients with the disease and from patients who had been given intradermal injections of streptococcus endotoxin (nucleoprotein) and of tuberculin. Practically the same histologic changes were found in all, so that as far as etiology goes it seems that not much help is to be derived from microscopic study of the lesions. In this study there seemed to be a close association of the

eruption with streptococcic infections, but other factors also were involved. Five of the ten patients had a sore throat prior to the onset; two had painful joints. Throat cultures in four patients revealed *Streptococcus haemolyticus* of the beta type, and eight of the patients gave a positive skin reaction to an intradermal injection of the streptococcus nucleoprotein fraction. Of the 133 patients observed from 1924 to 1934, of whom 111 were females, the eruption appeared to have a seasonal incidence closely paralleling that of the acute streptococcic infections such as acute follicular tonsillitis, scarlet fever and erysipelas. It also followed exposure to streptococcic infection. Rheumatic heart disease was present in 11.2 per cent of the patients; one had acute mitral disease and chorea. In only two cases was there a history of exposure to tuberculosis.

Tuberculosis, however, as a causative factor, has been observed too frequently to be disregarded. Especially in children does it appear to have a definite relationship. Scandinavian observers have noted that erythema nodosum is almost as frequent a complication of tuberculosis as pleurisy, and children who develop the disease are presumed to have tuberculosis until proved otherwise. The tuberculin reaction is often negative before the lesions appear but becomes positive when they do, or shortly after. Phlyctenular conjunctivitis is often associated.

The authors conclude that the disease, if such it may be called, is a nonspecific inflammatory reaction due to a variety of bacterial, toxic and chemical agents. The etiologic factor is usually of a streptococcic or tuberculous nature, the latter more commonly in children. Other causes are not infrequent and must be looked for and eradicated when possible.

RECENT REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry has issued a number of reports during the last few months indicative of its constant efforts to keep abreast of the newest therapeutic advances. The description of protamine zinc insulin, together with its actions and uses, was elaborated by the Council (*THE JOURNAL*, February 20, p. 640) in close cooperation with representatives of the Insulin Committee of the University of Toronto. The Council's report gives succinctly the essential attributes of the preparation.

Ingestion of the nonmetabolizable substance called mandelic acid imparts to the urine a sufficient degree of acidity to yield effective bactericidal action provided certain pathologic conditions are not present. The Council's report on this product (*THE JOURNAL*, March 27, p. 1033), prepared for the Council by Dr. William F. Braasch, informed the profession of the essential properties of mandelic acid therapy. However, the Council, with admirable caution, decided that the time was not yet ripe to accept the product for inclusion in *New and Nonofficial Remedies* and voted to await fur-

1. Moon, V. H., and Strauss, Abram: Erythema Nodosum, *Arch. Dermat. & Syph.* 26:78 (July) 1932.

2. Spink, W. W.: Pathogenesis of Erythema Nodosum, *Arch. Int. Med.* 59:65 (Jan.) 1937.

ther evidence concerning the harmlessness and usefulness of the drug. The Council felt that there are as yet insufficient pharmacologic data. As has been brought out in other papers in *THE JOURNAL*, if mandelic acid is not used properly and at times under careful institutional control, untoward results may follow. A number of physicians have written to *THE JOURNAL* concerning toxic reactions. Dr. Braasch emphasizes the need of determining whether or not primary renal insufficiency exists before the drug is employed.

Surgeons, particularly, should be interested in the report on the status of catgut sutures (*THE JOURNAL*, February 27, p. 722) prepared under the direction of the Council on Pharmacy and Chemistry at the request of the Board of Trustees. The survey was undertaken with two objects in view: first, to study critically the technic that has been employed heretofore in testing the sterility of catgut sutures, to modify this technic as might seem desirable and to describe it in such a manner that it might be of use to manufacturers of sutures and others interested in the control of these products; and, second, to determine the status of sterility of sutures now available on the American market and especially of those recently manufactured in comparison with those on the market some years ago. Of fourteen brands tested, samples of six firms were found not sterile. Four of the fourteen firms no longer manufacture sutures. If only sutures of recent manufacture are considered, the percentage of firms placing nonsterile products on the market drops from 43 to 12.5, indicating a decided improvement. In view of this work the Council issued a warning against the use of so-called chemically sterilized sutures; in the opinion of the Council it is better to use only heat sterilized sutures until more reliable chemical processes have been devised. The Council also felt that manufacturers should place on their labels a date of manufacture and that physicians should use those sutures which bear a date more recent than Oct. 8, 1936, at which time the report was submitted to the manufacturers. It may be stated that in the case of some of the manufacturers immediate steps were taken to safeguard further their supply of sutures. Indeed, one large manufacturer has entirely discarded his old plant and installed new machinery and a new technic. Because of the interest in this report there has been recently introduced in Congress by Senator David I. Walsh of Massachusetts a bill to place the control of ligatures under the U. S. Public Health Service. Undoubtedly physicians would approve any further safeguards that might be offered. In the meantime, the Board of Trustees and the Council on Pharmacy and Chemistry have arranged for a further survey of the market supply of catgut sutures.

In another recent issue of *THE JOURNAL* (April 3, p. 1172) appeared a comprehensive report on Evipal Soluble (Evipan Sodium), a quick acting hypnotic of the barbituric acid series. The Council voted that the drug be declared unacceptable until more trust-

worthy methods are available for determining the safe and effective dosage under a wide variety of conditions, until the contraindications—both relative and absolute—have been adequately determined, and until comprehensive pharmacologic studies make possible the fixing of responsibility of the anesthetic in many of the available clinical reports of accidents. The Council has repeatedly warned the profession concerning the dangers of the intravenous use of nonvolatile anesthetics except in case of emergencies; it recognizes and accepts products which are recommended for use as basal anesthetics.¹ In the case of Evipal Soluble the Council has analyzed a series of deaths arising from the injection of this barbital derivative. The Council recognizes that Evipal Soluble may have a restricted field of usefulness in which it may be employed with relative safety provided it is used with skill and with due regard for its limitations.

The work here reported is another tribute to the value of the American Medical Association. Only such an organization could provide the funds to maintain an unbiased body which reports fearlessly and with authority on preparations which doctors are importuned to use. Such work is costly both in time and in money. Members of the Council receive no remuneration for their work and contribute time taken from busy professional careers. The laboratory, personnel and facilities of the Council have recently been described in the Organization Section of *THE JOURNAL*. The profession will undoubtedly be interested in forthcoming reports of the Council, which will deal with further problems of current medical interest.

Current Comment

SCIATIC PAIN AND ITS RELIEF

Freiberg¹ has recently reported several important observations on the anatomic relations of the sciatic nerve. The piriformis muscle, he states, is constantly found to have a part of its origin from the capsule of the sacro-iliac joint, and it is the only muscle which bridges that joint. This muscle is in extremely close relationship with the sciatic nerve. The nerve, in fact, is found to penetrate the substance of the muscle in 10 per cent or more of cadavers. Experiments on cadavers show that by the Lasègue maneuver the piriformis is put on the stretch after only a few degrees of straight leg raising through the medium of the biceps femoris muscle and its connection with the great sciatic ligament, from which the piriformis derives a part of its origin. The piriformis may therefore be expected to react by spasm as the result of disease in the sacro-iliac joint because of its partial derivation from the capsular ligament of this joint. It follows that the possibility of direct involvement of the sciatic nerve must be granted in case of disease or spasm of the piriformis.

1. Intravenous Use of Barbitol Compounds, Reports I and II; *THE JOURNAL*, Dec. 19, 1931, p. 1886, and July 15, 1933, p. 208.

1. Freiberg, A. H.: Sciatic Pain and Its Relief by Operations on Muscle and Fascia, *Arch. Surg.* 34: 337 (Feb.) 1937.

These observations led Freiberg to the belief that the relationship of the piriformis muscle to the sciatic nerve might be of practical importance. In demonstration of this he cites two cases of sciatic pain attributed to the piriformis muscle in which relief was obtained by cutting the iliotibial band when in contraction or by section of the piriformis muscle in the absence of the Ober sign of abduction contracture. Obviously, however, this operation for relief, when indicated, cannot be considered to fulfil the responsibility demanded by sciatic pain. Nevertheless, according to Freiberg it seems justifiable that by means of these relatively simple and safe procedures new hope can be offered to a group of cases heretofore highly refractory to professional intervention. As such a measure, Freiberg's proposal seems to offer a subject worthy of further investigation.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Meeting and Election.—Dr. Harold W. Rice, Bisbee, was chosen president-elect of the Arizona State Medical Association at its annual meeting in Yuma, April 1-3, and Dr. Chester R. Swackhamer, Superior, was installed as president. Other officers are Drs. William Paul Holbrook, Tucson, vice president; Clarence E. Yount, Prescott, treasurer, and Delamere F. Harbridge, Phoenix, secretary. A public meeting was held Wednesday evening, March 31, with Dr. William W. Bauer, director, Bureau of Health and Public Instruction, American Medical Association, Chicago, as the principal speaker; his subject was "Health for Today." Dr. Bauer also addressed the state association Friday afternoon on "Doctors as Health Teachers." Other guest speakers included:

- Dr. Norman N. Epstein, San Francisco, Artificial Fever Therapy.
- Dr. Henry Dietrich, Los Angeles, Fallacies in the Care and Treatment of Children.
- Dr. John C. Wilson, Los Angeles, Present Status of Treatment of Fractures of the Neck of the Femur.

Greetings from the Texas and New Mexico state medical associations were presented by Drs. Robert B. Homan, El Paso, and Fred D. Vickers, Deming, N. M., respectively. In addition to many other Arizona physicians on the program, the following participated in a session on industrial relations:

- Dr. Jesse D. Hamer, Phoenix, Report of the Industrial Relations Committee.
- Dr. Ralph F. Palmer, Phoenix, Industrial Surgery in Arizona; Responsibility of Organized Medicine and the Individual Industrial Surgeon Thereof.
- Drs. Emile C. Houle, Nogales, and Charles P. Austin, Douglas, Traumatic Emergency Surgery.
- Dr. William Jewell Smith, Phoenix, Injuries to the Eye Resulting from Foreign Bodies.
- Mr. Carl Holmes, The Arizona State Industrial Commission.

The woman's auxiliary held its annual meeting, April 1-2. The speakers were Mrs. James F. Percy, Los Angeles, Mrs. Philip S. Doane, Pasadena, and Mrs. Mark A. Glaser, Los Angeles.

CALIFORNIA

Society News.—Dr. Claude W. Munger, formerly of Valhalla, N. Y., now of New York, addressed the Hollywood Academy of Medicine, April 15, on "The Internship—An Opportunity in Medical Education."—Dr. Bransford Lewis, St. Louis, addressed the Los Angeles County Medical Association, March 18, on "Nephropexy, the Neglected Stepchild of Surgery."—At a joint meeting of the Los Angeles Society of Ophthalmology and Otolaryngology and the Research Study Club of Los Angeles, April 26, the speakers were Drs. Grant L. Selfridge, San Francisco, on "Chronic Progressive Deafness from a Nutritional Standpoint" and Walter P. Covell, San Francisco, "Experimental Nerve Deafness from the Standpoint of Drugs, Toxins and Dietary Factors."

DISTRICT OF COLUMBIA

Annual Scientific Assembly, May 5-6.—The annual scientific assembly of the Medical Society of the District of Columbia will be held, May 5-6, under the presidency of Dr. William Mercer Sprigg. A complimentary luncheon will be given at the Mayflower Hotel, Wednesday, with Arthur Deerin Call, Ph.D., editor of *World Affairs*, Washington, as the guest speaker; his subject will be "As to the Prospects for War." A public meeting Wednesday evening will be addressed by Dr. Howard Wilcox Haggard, New Haven, Conn., on "Medicine and the Public." Guest speakers will include Drs. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, on "Serum Therapy in Pneumonia," and James C. White, assistant professor in surgery, Harvard University Medical School, Boston, on "The Sympathetic Nervous System in Relation to Cardiovascular Disease." Other speakers will include:

- Dr. Howard P. Parker, Paraldehyde-Benzyl Alcohol Obstetrical Analgesia by the Kane-Roth Method.
- Dr. Agnes B. W. Greig, Learning Disability in Intelligent Children—A Symptom of Emotional Disturbance.
- Dr. Arthur C. Christie, The Socialization of Medicine: To What Extent Is It Desirable?
- Dr. Henry B. Gwynn, Artificial Fever Therapy of Gonorrheal Arthritis.
- Drs. Walter Freeman and James W. Watts, The Surgical Treatment of Mental Disorders.
- Dr. John H. McLeod, The Use of Acacia in the Relief of Edema in Lipoid Nephrosis.
- Dr. Harry A. Fowler, Mandelic Acid: The New Urinary Antiseptic.

A tour of the crime laboratory of the federal bureau of investigation will be a feature of the meeting, and trips are planned to the Smithsonian Institution and the National Institute of Health. Clinics are scheduled for Thursday morning, and, in the evening, the annual banquet at the Mayflower Hotel. The woman's auxiliary will also hold its annual session during the two days.

GEORGIA

State Medical Meeting at Macon, May 11-14.—The eighty-eighth annual session of the Medical Association of Georgia will be held at the Municipal Auditorium, Macon, May 11-14, under the presidency of Dr. Benjamin H. Minchew, Waycross. Dr. Minchew will give his official address Thursday, entitled "The Responsibility of the Layman in a Public Health Program." The Abner Wellborn Calhoun Lecture will be delivered Wednesday by Dr. Isaac A. Abt, professor of pediatrics, Northwestern University Medical School, Chicago, on "The Story of the Vitamins in Infant Nutrition." Other guest speakers will include:

- Dr. John H. J. Upham, Columbus, Ohio, President-Elect, American Medical Association, Heart Disease in Middle Life.
- Dr. Roy D. McClure, Detroit, The Control of Thyroid Disease in Michigan.
- Dr. Charles Franklin Craig, professor of tropical medicine, Tulane University of Louisiana School of Medicine, New Orleans, Tropical Diseases of Interest to Southern Physicians.
- Dr. Olin West, Secretary and General Manager, American Medical Association, Chicago.

In addition to the presentations by Georgia physicians, the program will include symposiums on fractures and on tuberculosis.

IDAHO

Dr. Dunshee Appointed Director of Public Health.—Dr. Jay D. Dunshee, public health adviser in the Department of Public Welfare of Idaho, Boise, has been appointed director of the division of public health, created in the department March 6 by the state legislature. A division of charitable institutions was also created, but up to April 1 no director of institutions had been appointed. Dr. Dunshee graduated from the State University of Iowa College of Medicine, Iowa City, in 1908. He engaged in private practice from 1908 to 1917 and from 1921 to 1926 was director of child welfare in Los Angeles. He served as health officer of Pasadena from 1929 until 1934, when he was appointed director of the state department of health of California. He has been with the Idaho department since 1936.

ILLINOIS

Meeting of Bacteriologists.—The Society of Illinois Bacteriologists will hold its annual meeting Friday evening May 7, in joint session with the Tri-State Hospital Association and affiliated organizations, at the Hotel Sherman, Chicago. The speakers will include:

- L. Enos Day, Chicago, Accomplishments of Veterinary Medicine in Control of Human Tuberculosis.
- G. V. Hallman, M.S., Chicago, Relation of Thermophilic Bacteria to Spoilage of Canned Foods.
- Dr. Alfred S. Giordano, South Bend, Ind., Diagnosis of Undulant Fever.
- Dr. Emil Weiss, Chicago, Complement Fixation in the Diagnosis of Amebiasis.

State Department and the Administration of Venereal Disease Clinics.—Numerous applications received by the state department of health from physicians seeking employment as clinicians in venereal disease clinics indicate an erroneous idea concerning the administrative policy with respect to the program of venereal disease control in Illinois, according to an announcement. The state department does not operate and does not propose to establish any clinics for the treatment of patients infected with venereal diseases. The department has begun and proposes to expand the practice of rendering financial aid to local communities for the establishment and operation of venereal disease clinics which are a factor in a community program of social hygiene. The administration of the clinics as well as the entire program is a local matter, the state department of public health insisting only that the personnel engaged be well qualified and the program meet reasonably high standards. Otherwise local authorities will have complete jurisdiction over the employment of personnel and the execution of the work.

Chicago

Society News.—At a meeting of the Chicago Society of Internal Medicine, April 26, the speakers included Drs. Lester R. Dragstedt, John Van Prohaska, Paul B. Donovan, Ph.D., and Dr. William A. Geer on "Lipocais, A New Pancreatic Hormone" and Richard L. Webb, Ph.D., "Mesenteric Lymphatics: Analysis of the Mechanism of Drug Action as Revealed by Motion Pictures."—The Institute of Traumatic Surgery held an all day session at St. Luke's Hospital, April 23; the guest speaker was Dr. Willis C. Campbell, Memphis, Tenn., and his subject, "Ununited Fractures of the Neck of the Femur."—Dr. Albert Bessemans, formerly rector, University of Ghent, Belgium, lectured April 23 under the auspices of Northwestern University Medical School and the Institute of Medicine of Chicago; on "Experimental Data on Antisyphilitic Hyperpyrexia Produced by Physical Agents."

INDIANA

Annual Graduate Course.—The Indiana University School of Medicine and the state medical association will present their annual graduate course at the medical school and the Lincoln Hotel, Indianapolis, May 10-14. Clinics, demonstrations, lectures and clinical pathologic conferences will be offered on the specialties during the day, and evening programs will be presented by the following:

- Dr. Samuel A. Levine, assistant professor of medicine, Harvard University Medical School, Boston, Cardiology.
- Dr. Vernon C. David, clinical professor of surgery, Rush Medical College, Chicago, Surgery.
- Dr. Nicholson J. Eastman, professor of obstetrics, Johns Hopkins University School of Medicine, Baltimore, Obstetrics.
- Dr. Frank C. Mann, professor of pathology, surgery and experimental physiology, University of Minnesota, Graduate School of Medicine, Rochester-Minneapolis, Physiology.
- Dr. Harold N. Cole, associate clinical professor of dermatology and syphilology, Western Reserve University School of Medicine, Cleveland, Syphilis.

A public meeting Friday evening, May 14, will be addressed by Maud Slye, A.B., associate professor of pathology, University of Chicago, on cancer. The first day of the course has been designated "Pediatrics Day," the program to be presented by the Indiana State Pediatric Society.

IOWA

State Medical Meeting at Sioux City, May 12-14.—The eighty-sixth annual session of the Iowa State Medical Society will be held at the Masonic Temple, Sioux City, May 12-14, under the presidency of Dr. Prince E. Sawyer, Sioux City. A symposium on gallbladder disease will be given Wednesday morning by Drs. Ewen M. MacEwen, Fred M. Smith, Carl L. Gillies and Frank R. Peterson, all of Iowa City. Thursday morning the program will be presented by the following:

- Dr. Louis Hamman, Baltimore, Syphilis of the Heart and the Aorta.
- Dr. Dean D. Lewis, Baltimore, Endocrinology as Related to Surgery.
- Dr. Sanford R. Gifford, Chicago, Recent Views of Senile Cataract.
- Dr. Alexis F. Hartmann, St. Louis, Hyperinsulinism and Hypoglycemia in Infants and Children.

Thursday and Friday afternoons have been set apart for sectional conferences, and the following speakers are scheduled for Friday morning:

- Dr. Lewis, Surgical Lesions of the Breast.
- Dr. Hamman, Abdominal Tumors.
- Dr. Charles Gordon Heyd, New York, President, American Medical Association, Medical Economics.

At the smoker Wednesday evening there will be several rounds of boxing. At the banquet at the Hotel Martin, Thursday evening, Dr. Arthur D. Woods, State Center, will be

toastmaster, and the speakers will be Dr. Sawyer, Dr. Edward M. Myers, Boone, president-elect, and Mr. Arthur F. Briese, Chicago. The State Society of Iowa Medical Women and branch 19, Medical Women's National Association, will meet at the Hotel Martin, May 12. The speakers will include Drs. Goldie E. Zimmerman, Sioux Falls, S. D., on "The Value of Medical Supervision During Early Childhood," and Nora Winther, Minneapolis, "Trichomonas." The eighth annual meeting of the woman's auxiliary of the Iowa State Medical Society will be held May 9.

KANSAS

State Medical Meeting at Topeka, May 3-6.—The seventy-eighth annual session of the Kansas Medical Society will be held in the Masonic Temple, Topeka, under the presidency of Dr. Howard L. Snyder, Winfield. The program includes the following speakers:

- Dr. Meyer Wiener, St. Louis, Surgery of Glaucoma.
- Dr. Everett D. Plass, Iowa City, Management of Abortions.
- Dr. James H. Mitchell, Chicago, Streptococcal Dermatoses.
- Dr. Thomas E. Carmody, Denver, Sinus Disease in Children.
- Dr. Claude F. Dixon, Rochester, Minn., Cancer of the Colon.
- Dr. Robert C. Jeffries, Atchison, of Injuries mmon Auto-
- Dr. Earl C. Padgett, Kansas City, mobile Injury.
- Dr. William M. Ketcham, Kansas City, Mo., Hypertensive Heart Disease.
- Dr. Thomas G. Orr, Kansas City, Diagnosis and Treatment of Breast Cancers.
- Dr. Russell L. Haden, Cleveland, Clinical Approach to the Rheumatic Problem.
- Dr. Arnold S. Jackson, Madison, Wis., Regional Enteritis.
- Dr. Archibald L. Hoyne, Chicago, Progress in the Treatment of Meningococcal Meningitis.
- Dr. Elliott P. Joslin, Boston, The Diabetic as a Surgical and an Obstetrical Risk.
- Dr. John Albert Key, St. Louis, Treatment of Elbow and Wrist Fractures.
- Dr. Philip C. Jeans, Iowa City, Recent Advances in Nutrition.
- Dr. Charles F. Taylor, Norton, A Report of Sixty Consecutive Intrapleural Pneumolyses.
- Dr. Christian A. Hellwig, Wichita, Uterine Bleeding After Forty.
- Dr. Herbert J. Rinkel, Kansas City, Mo., Diagnostic Problem in Food Allergy.
- Dr. Walter E. Thornton, Fort Wayne, Ind., Relation of Life Insurance to Medical Practice.

The annual banquet will be held at the Topeka High School followed by a dance on the Hotel Jayhawk Roof. The Kansas branch of the Medical Women's National Association will meet at breakfast Thursday morning. The Kansas Medical Golfing and Trapshooting associations will hold their tournaments Monday; in the evening there will be a joint stag banquet.

KENTUCKY

Mortality in the Recent Flood.—The director of the bureau of vital statistics of the state board of health has reported to the U. S. Public Health Service deaths resulting directly and indirectly from the flood between January 22 and February 28. The figures are: pneumonia 252 (of which 139 were in Louisville), influenza 54, drowning in flood waters 16, explosion 15, exposure 10, accident (other than drowning and explosion) 9, heart disease 7, total 363. The public health service points out that the significance of these figures lies in the small numbers. There was no outbreak of epidemic disease.

MASSACHUSETTS

"Eye Specialist" Birnstein Sentenced Again.—Samuel Birnstein, New Orleans, was fined \$600 and sentenced to two years in the house of correction by Superior Judge Thomas J. Hammond, February 24, for participation in the activities of a ring of fake eye specialists, newspapers reported (THE JOURNAL, Nov. 14, 1936, page 1643). Since Birnstein pleaded guilty last October to a charge of larceny after his arrest by postal inspectors in New Orleans, he has repaid his victims in this charge \$1,500 of the \$2,000 he received from them. The judge announced that he would reduce the fine against Birnstein to a nominal amount if the sum was paid in full during the remaining few weeks of that sitting of the court, it was reported. In January Birnstein was indicted with others by a federal grand jury in Milwaukee, where he pleaded guilty to charges of conspiracy and using the mails to defraud. He was fined \$1,000 and sentenced to two years in federal prison, the sentence to be served on the completion of his term in the house of correction in Massachusetts.

MINNESOTA

Dr. Maxcy Goes to Johns Hopkins.—Dr. Kenneth F. Maxcy, professor and head of the department of preventive medicine and public health, University of Minnesota School of Medicine, Minneapolis, has been appointed professor of bacteri-

ology at Johns Hopkins University School of Hygiene and Public Health, Baltimore, effective July 1. He succeeds Dr. William W. Ford, who has held the position since 1920 and is retiring on account of the age limitation. Dr. Maxcy graduated from Johns Hopkins University School of Medicine in 1915. He resigned as professor of preventive medicine and bacteriology at the University of Virginia School of Medicine, Charlottesville, to accept the position at Minnesota in 1936. Recently he was appointed to a three year term with the International Health Division of the Rockefeller Foundation as one of the scientific directors. Dr. Ford is also a graduate of Johns Hopkins and has been associated with the school in various capacities since 1903.

MISSOURI

State Medical Meeting at Cape Girardeau, May 10-12.—The eightieth annual session of the Missouri State Medical Association will be held at the State Teachers College, Cape Girardeau, May 10-12, under the presidency of Dr. Ross A. Woolsey, St. Louis. Five general meetings and one public meeting will be held, with the maternal welfare committee holding a dinner session at the Marquette Hotel Monday. Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, among others, will address this dinner meeting on "Critique of Submitted Maternal Death Reports." Dr. Miller will also present a paper entitled "How Bad Is Obstetric Care?" at a general session Tuesday. Dr. Herman E. Pearse Jr., Rochester, N. Y., will speak Wednesday on "Care of Infections of the Neck and Their Complication, Mediastinitis." Other speakers will include:

Walter W. Parker, LL.D., Cape Girardeau, president, Southeast Missouri State Teachers College, A Pedagogue Looks at the Doctors.
Dr. George Wilse Robinson Jr., Kansas City, The Addiction of Patients to Various Barbituric Acid Derivatives.
Dr. Roland M. Klemme, St. Louis, Accurate Differential Section for the Treatment of Trigeminal Neuralgia.
Drs. Wendell G. Scott and Sherwood Moore, St. Louis, Roentgen Kymography: A New Aid in the Diagnosis of Heart Disease.
Dr. Clinton K. Smith, Kansas City, A Revised Conception of Early Prostatic Hypertrophy.

At the public meeting, Tuesday evening, Dr. Ellis Fischel, St. Louis, will discuss "Early Recognition and Treatment of Cancer" and Dr. Edwin Lee Miller, Kansas City, "Appendicitis."

NEW MEXICO

State Medical Meeting at Clovis.—The annual session of the New Mexico Medical Society will be held at Clovis, May 13-15, with headquarters at the Hotel Clovis. The speakers announced on the program are:

Dr. Arthur E. Hertzler, Halstead, Kan., Surgery of the Thyroid.
Dr. Ray M. Balyeat, Oklahoma City, Therapeutic Value of Intratracheal Use of Iodized Oil Combined with Eliminative Measures and Specific Desensitization in the Treatment of Intractable Asthma.
Dr. Everett C. Fox, Dallas, Texas, Cancer of the Skin.
Dr. Harold T. Low, Pueblo, Colo., Vesical Neck Obstruction in Male Children.
Dr. Barton A. Rhinehart, Little Rock, Ark., Functional Disorders of the Gastro-Intestinal Tract.
Dr. Henry C. Gernand, Los Angeles, Conduct of Labor in Regard to Operative Intervention.
Dr. Meldrum K. Wylder, Albuquerque, Care of the New-Born.
Dr. William H. Daniel, Los Angeles, The Present Management of Cancer of the Rectum.
Dr. Melvin S. Henderson, Rochester, Minn., Modern Orthopedic Surgery.
Dr. Hugh G. Jeter, Oklahoma City, Blood Dyscrasias.
Dr. John A. Schoonover, Denver, subject not announced.

Dr. George W. Jones, Clovis, will be installed as president of the society at this meeting, to succeed Dr. Mallory B. Culpepper, Carlsbad.

NEW YORK

The Will Rogers Memorial Hospital.—The former National Vaudeville Artists Sanatorium at Saranac Lake became officially the Will Rogers Memorial Hospital February 25, when Will Hays presented the deed to Jesse H. Jones, treasurer of the Will Rogers Memorial Commission.

Society News.—The twenty-first annual meeting of the New York State Association of Public Health Laboratories will be held, May 10, at the Binghamton City Hospital. —Dr. Perrin H. Long, Baltimore, addressed the Medical Society of the County of Albany, March 24, on "The Use of Para-Amino-Benzene-Sulfonamide in the Treatment of Beta-Hemolytic Streptococcal and Other Infections." —At a meeting of the Onondaga Medical Society, Syracuse, April 6, the speakers were Drs. Abraham Clement Silverman, on "What's New About Scarlet Fever"; Joseph Ernest Delmonico, "Acute Pancreatitis," and Arthur N. Curtiss, "Treatment of Peripheral Vascular Disease." —Speakers who addressed the Syracuse Academy of Medicine, April 20, were Drs. Harry A. Steckel,

on "What's New About Dementia Praecox"; William E. Ayling, "Tuberculosis Case Finding in School Children," and Nathan P. Sears, "Carcinoma of the Cervix." —The New York State Conference of State, County and City Committees on Tuberculosis and Public Health of the State Charities Aid Association will be held at the Hotel Roosevelt, New York, May 11-13.

New York City

Personal.—Dr. Simon Flexner, emeritus director of the Rockefeller Institute for Medical Research, received the honorary degree of doctor of science at the recent centennial celebration of the University of Louisville School of Medicine, Louisville, Ky., April 3. —Dr. William Bierman was made a member of the Legion of Honor of France during the recent International Congress on Fever Therapy in New York, in recognition of his research on artificial fever. —Israel S. Kleiner, Ph.D., professor of physiology and biochemistry, New York Medical College and Flower Hospital, has received a grant from the Lucius N. Littauer Foundation to aid his studies of the male hormone.

Hospital Strikers Convicted of Disorderly Conduct.—Thirty-seven men and one woman were convicted of disorderly conduct and sentenced to thirty days in the city prison, March 24, after they had participated in sit-down strikes at the Brooklyn Jewish Hospital March 15 and 17. The sentences were suspended pending good behavior, which the judge defined as not doing anything to interfere with the routine of the hospital. Sixty-three strikers were discharged after they had refused to return to work, and those who declined to leave the hospital peacefully were arrested on the ground that, as they were no longer employed by the hospital, they were trespassing on private property. The workers included elevator operators, orderlies, laundry workers and maids.

NORTH DAKOTA

Health Officers Appointed.—Dr. Frank E. Bunting, Mandan, has recently been made health officer of Morton County. —Dr. Eugene E. Hamilton, New Leipzig, has succeeded Dr. Leonard B. Moyer as health officer of Grant County.

New Unit at State Tuberculosis Hospital.—A new unit to accommodate 125 patients will be placed in operation about May 10 at the North Dakota State Tuberculosis Sanatorium, San Haven. With the new addition the sanatorium will furnish service to 425 patients. The new unit is five stories high and of fireproof construction, faced with brick over tile. There is no wood in the walls and floors. The first floor is devoted to administrative offices, waiting rooms, examination rooms and surgery rooms; the second, third and fourth floors to wards for patients, and the fifth to a solarium. The entire cost of the unit was \$300,000, of which the state paid \$160,000 and the remainder was a PWA grant. Equipment will cost \$96,148.

OKLAHOMA

Personal.—Dr. Albert L. Davenport, Holdenville, has been appointed health officer of Hughes County to succeed Dr. Charles S. Wallace, Holdenville. —Dr. Clyde W. Beson, Claremore, former state health commissioner, has been appointed medical adviser to the state industrial commission. —Dr. Charles S. Bobo, Norman, was recently honored by a banquet given by the Cleveland County Medical Society in celebration of his eighty-first birthday.

Society News.—Drs. Lee Pettit Gay, St. Louis, and Herbert J. Rinkel, Kansas City, Mo., addressed the Tulsa County Medical Society, Tulsa, March 22, on "Peptic Ulcer: A New Etiological Concept" and "Treatment of Seasonal Hay Fever: The Evaluation of Secondary Factors in Seasonal Pollinosis," respectively. —Drs. Earl D. McBride and William K. Ishmael, Oklahoma City, addressed the Garfield County Medical Society, Enid, March 18, on arthritis, and Dr. Howard B. Shorbe, Oklahoma City, on immobilization and surgical care of fractures.

PENNSYLVANIA

Graduate Assembly in Harrisburg.—The annual graduate assembly presented by the Harrisburg Academy of Medicine will be held May 27 in the educational building at the state capitol. The following speakers will appear:

Dr. Hugh H. Young, Baltimore, The Prostate.
Dr. Philip W. Brown, Rochester, Minn., The Management of Diarrhea.
Dr. Clifford G. Grulee, Evanston, Ill., Breast Feeding.
Dr. Cary Eggleston, New York, Treatment of Heart Disease.
Dr. Isidor S. Ravidin, Philadelphia, Problems of Gallbladder Disease.
Dr. John P. Griffith, Pittsburgh, Diagnosis and Treatment of Hyperthyroidism.

Philadelphia

Award Presented to Dr. Turnbull.—The Strittmatter Award, given annually by the Philadelphia County Medical Society, was presented April 14 to Dr. William G. Turnbull, superintendent of the Philadelphia General Hospital since 1928. Dr. Turnbull was graduated from the University of Pennsylvania School of Medicine in 1906 and became superintendent of the Pennsylvania State Sanatorium for Tuberculosis at Cresson when it was established in 1913. Later he was appointed deputy state secretary of health with supervision over several state sanatoriums. He succeeded Dr. Joseph C. Doane in 1928 at Philadelphia General Hospital. The Strittmatter Award was established by Dr. Isidore P. Strittmatter to be given to the physician who has "made the most valuable contribution to the healing art, including remedial measures, surgical or medical." The presentation was at a dinner during the society's Postgraduate Institute. At this time Dr. John Shelton Horsley, Richmond, Va., delivered the John Chalmers Da Costa Oration on "Peritonitis."

Pittsburgh

Annual Meeting.—The Allegheny County Medical Society held its annual meeting at Hotel Schenley April 20. In the afternoon a scientific program was presented with addresses by Drs. Wingate Todd, Cleveland, on "Methods of Studying Constitutional Disturbances Associated with Allergy and Other Conditions"; James S. Taylor, Altoona, "Maternal and Fetal Mortality"; Leo H. Crip, Pittsburgh, "Allergy to Liver Extract," and Jesse B. Griffith, Pittsburgh, "Manipulation Treatment in Diseases of the Knee Joint." General Hugh S. Johnson, New York, was the speaker at the banquet.

Dedication of Mellon Institute Building.—The new building of the Mellon Institute for Industrial Research will be dedicated May 6. The program of the ceremony which will be held in Carnegie Music Hall, will include the following speakers: Dr. William P. Murphy, Boston; Harold C. Urey, Sc.D., professor of chemistry, Columbia University; Irving Langmuir, D.Sc., associate director of the research laboratory, General Electric Company, Schenectady, N. Y.; Andrew W. Mellon, former Secretary of the Treasury, and Richard K. Mellon, for the founders. Friday May 7 there will be a symposium on recent progress in science in Carnegie Music Hall, in which the speakers will include Sir Frederick G. Banting, Toronto, Ont.; Dr. William W. G. MacLachlan, Pittsburgh; Frank B. Jewett, Ph.D., Bell Telephone Laboratories, New York, and George O. Curme Jr., Ph.D., vice president and director of research, Carbide and Carbon Chemicals Corporation, New York. The building will be open to the public Saturday and Sunday, May 8-9.

TEXAS

State Medical Meeting at Fort Worth.—The seventy-first annual session of the Texas State Medical Association will be held in Fort Worth, May 11-13, with headquarters at the Hotel Texas. The following guest speakers will address general sessions Tuesday morning, Wednesday and Thursday afternoons:

Dr. Charles Gordon Heyd, New York, President, American Medical Association, on The American Medical Association—Your National Society.
Dr. Edward Clay Mitchell, Memphis, Tenn., Infection and Immunity with a Résumé of Prevention of Contagion.
Dr. Walter E. Dandy, Baltimore, Brain Tumors.
Dr. William Warner Watkins, Phoenix, Ariz., Haliteresis as a Medical Problem.
Dr. Francis E. Le Jeune, New Orleans, The Significance of Hoarseness (Motion Picture).
Dr. Joseph Rigney D'Aunoy, New Orleans, Lymphogranuloma Inguinale.
Dr. Lewis J. Moorman, Oklahoma City, Diagnostic Problems in Diseases of the Respiratory Tract.
Dr. Virgil S. Counsellor, Rochester, Minn., Cancer of the Reproductive Organs of Women.
Fred Hale, M.S., College Station, Texas, The Relation of Maternal Vitamin A Deficiency to Microphthalmia in Pigs.
Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Public Health Control of Syphilis.

Several of the guests will also address section meetings. Wednesday there will be three "clinical luncheons" given by the sections in honor of their guests and on Thursday a combined sections luncheon. The section on public health will present a symposium on syphilis, with Drs. James W. Bass, Everett C. Fox and Arthur G. Schoch, Dallas; Leroy B. Duggan, Houston, and George W. Cox, Austin, state health officer, as the speakers. The section on radiology and physical therapy will have symposiums on pneumonia and bone tumors. Thursday morning a tumor clinic will be held in cooperation with the Texas State Pathologic Society. The woman's auxiliary will hold its nineteenth annual session under the

presidency of Mrs. Robert B. Homan, El Paso. The president's reception will be at the Hotel Texas, Tuesday evening May 11, honoring Dr. Howard R. Dudgeon, Waco, president of the state association. Monday evening the Tarrant County Medical Society will entertain the visiting physicians. Related organizations that will meet during the week are the Texas Railway Surgeons Association, Texas Neurological Society, Texas State Heart Association, Texas Dermatological Society, and a conference of county and city health officers called by the state health officer.

GENERAL

Society News.—The twenty-second National Recreation Congress will be held in Atlantic City, May 17-21, with headquarters at the Ambassador. The National Congress of Parents and Teachers will hold its forty-first annual meeting in Richmond, Va., May 3-7. The Academy of Physical Medicine will meet, October 19-21, at the Hotel Walton, Philadelphia.

Meetings in Atlantic City.—The place for the annual luncheon of Phi Delta Epsilon during the annual session of the American Medical Association at Atlantic City has been changed from the Ritz-Carlton to the Ambassador, Thursday, June 10, at 12:30 p. m.—The annual Alpha Omega Alpha dinner during the annual session of the American Medical Association will be held at the Hotel Ambassador, Atlantic City, Thursday evening June 10. Dr. Walter Bradford Cannon, Boston, will be the speaker, on "The Value and Harm of Scientific Controversy."

Association of the History of Medicine.—The thirteenth annual meeting of the American Association of the History of Medicine will be held at Haddon Hall, Atlantic City, N. J., May 3. This meeting will commemorate William Wood Gerhard's differentiation of typhus from typhoid in 1837. The program will include the following speakers:

Dr. William S. Middleton, Madison, Wis., William Wood Gerhard.
Drs. George M. Dorrance and John W. Bransfield, Philadelphia, How the Ancients Treated Fracture of the Mandible.
Dr. Logan Clendening, Kansas City, Mo., The Medical Winning of the West.
Dr. Michael Leo Ravitch, New York, Metchnikoff, the Great Scientist and Nihilist.
Dr. Henry E. Sigerist, Baltimore, Medical History in the United States.
Dr. Maude E. S. Abbott, Montreal, More About Osler.

Child Welfare League Appoints Pediatrician.—Dr. Florence A. Browne, Detroit, has been appointed pediatrician to carry out a consultation and field service for the Child Welfare League of America under a grant from the Commonwealth Fund. Dr. Browne graduated from Johns Hopkins University School of Medicine, Baltimore, has served as pediatrician of the Michigan State Department of Health and has been in pediatric practice in New York. She began her service with the league March 1. The need for this service has become acute since the cessation of the program of the American Child Health Association, the league points out. It will now be possible to aid organizations caring for children in the development of plans for physical examinations of children, immunization, preparation of health records, and other health services.

Automobile Fatalities in Major Cities.—The U. S. Bureau of the Census reports that 9,599 deaths from automobile accidents occurred during 1936 in 131 major cities, a reduction of 178 from the number reported in 1935. During the first half of 1936, fatalities were reduced below the 1935 figures in sixty-three cities, but in the latter half of the year the toll rose rapidly. New York decreased its fatal accidents by 12.9 per cent, and Chicago by 8.8 per cent. Among other large cities that reported reductions were Baltimore, 12.8 per cent; Boston, 6.9; Camden, N. J., 43.3; Dallas, 15.1; Des Moines, 48.7; Newark, 17; New Orleans, 30.5; Omaha, 59.5; St. Louis, 38.9, and Worcester, Mass., 28.6. San Francisco reported 50 per cent more deaths, ninety in 1936 as compared with sixty in 1935. Other increases over the previous year were Albany, 23.8 per cent; Birmingham, 28.6; Detroit, 19; Milwaukee, 19.6; Philadelphia, 13.5; Pittsburgh, 4.1, and Wilmington, Del., 36.4.

Conference of Health Authorities.—The annual Conference of State and Provincial Health Authorities of North America was held April 5-6, in Washington, D. C., at the U. S. Public Health Service Building. Dr. Robert H. Riley, Baltimore, state health director of Maryland, was elected president; Dr. Maysil M. Williams, Bismarck, state health officer of North Dakota, vice president, and Dr. John A. Ferrell, New York, was reelected field secretary. The program included a symposium on flood health problems by Drs. Arthur T. McCormack, Louisville, Ky.; Wilson C. Williams, Nashville,

Tenn., and Walter H. Hartung, Columbus, Ohio, health officers of their respective states. The following papers, among others, were presented:

- Dr. Thomas Anwyl-Davies, London, Public Health Control of Syphilis in Great Britain.
 Dr. Ambrose J. King, London, Public Health Control of Gonorrhea in Great Britain.
 Dr. Rufus J. Cole, New York, Possibilities for Pneumonia Control as Indicated by Present Scientific Knowledge.
 Dr. Roscoe R. Spencer, U. S. Public Health Service, The U. S. Public Health Service Program of Public Health Education.
 Dr. Halbert L. Dunn, U. S. Bureau of the Census, Resident Death Rates and Public Health.

Tri-State Hospital Assembly.—The Tri-State Hospital Assembly, sponsored by the hospital associations of Illinois, Indiana and Wisconsin, will be held at the Hotel Sherman, Chicago, May 5-7. Subjects to be discussed include "The Administrative Organization of the Hospital," "Maintaining Professional Service Standards in Hospitals" and "Organization and Arrangement of the Physical Therapy Department with Regard to Efficiency, Economy and the Budget." In addition to round table and panel discussions presented by the constituent associations, the following, among others, will speak:

- Dr. Clement C. Clay, Chicago, The Adoption of a Standard Insurance Form for Proof of Death and Disability.
 Dr. William H. Walsh, Chicago, Correct Designing of a Medical Record Library.
 Chester F. Farmer, M.S., Chicago, A Micromethod for the Estimation of Ascorbic Acid in Blood.

At the annual banquet Thursday evening, sponsored by the Chicago Hospital Association, the speakers will be Drs. Philip F. Schneider, Evanston, Ill., and Israel Davidsohn, Chicago; their subjects are, respectively, "An Evaluation of Tests Being Used to Determine Pregnancy" and "Infectious Mononucleosis: Its Hematologic and Serologic Diagnosis."

PUERTO RICO

Society News.—Dr. Isaac F. Gonzalez Martinez, San Juan, was recently reelected president of the Puerto Rico chapter of the Pan American Medical Association; Dr. Jose Rodriguez Pastor, San Juan, vice president, and Dr. Rafael Rodriguez Molina, San Juan, secretary.

University News.—Nicholas Murray Butler, Ph.D., president of Columbia University, New York, paid a visit of inspection recently to the School of Tropical Medicine of the University of Puerto Rico, which is under the auspices of Columbia. The university conferred on Dr. Butler the honorary degree of doctor of laws, honoris causa. Dr. Alwin M. Pappenheimer, professor of pathology in the College of Physicians and Surgeons at Columbia, and Dr. Frederic M. Hanes, professor of medicine, Duke University School of Medicine, Durham, N. C., have recently visited the school for lectures and research.

FOREIGN

Course in Malarology in Rome.—The Institute of Malarology, Ettore Marchiafava, at the Policlinico Umberto I, Rome, will offer special courses to graduate physicians from July 15 to September 20. The lectures will be given in French, but interpreters will be available. There will be lectures and demonstrations of hematology, protozoology, the parasites of malaria and microscopic diagnosis, entomology, epidemiology and prophylaxis. The course will also cover malarial treatment of mental diseases, visits to malaria patients, visits and residence in an experiment station and in a center of induced malaria. Special steamship and railroad rates may be obtained, a reduction of about 50 per cent for individuals and 70 per cent for groups of eight or more. Information as to steamship rates, lodging and other details may be obtained by writing to the Royal Consul General of Italy, 626 Fifth Avenue, New York. Applications must be made before June 20.

World Congress on Documentation.—A World Congress of Universal Documentation is being organized to take place in Paris, August 16-21, under the auspices of an International Committee on Documentation. Defining the term documentation, an announcement includes all documents, manuscripts printed or otherwise recorded, catalogues, indexes, bibliographies and the methodical use of them in archives, libraries, documentation centers and museums. All those concerned in this large field are interested in a rational organization of documentation, it is stated, and various organizations have been working toward this end. The purpose of the congress will be to inquire into the present state of things and to examine principles, programs and methods, to draw up a minimum plan of work and service and to make a collective agreement to uphold any decisions made. Watson Davis, director of Science Service, Washington, D. C., is the American member of the International Committee of Documentation.

Government Services

Colonel Metcalfe Named Assistant Surgeon General

Col. Raymond F. Metcalfe, chief of the surgical service, Walter Reed General Hospital, Washington, D. C., has been appointed assistant to the surgeon general with the rank of brigadier general. He succeeds Brig. Gen. M. Augustus W. Shockley, who retired February 28, on his own application, after more than thirty years' service. A native of Salamanca, N. Y., the new assistant surgeon general graduated from the University of Buffalo College of Medicine in 1900 and the following year began his service with the army as assistant surgeon. During the World War, General Metcalfe served in France as chief surgeon of the thirty-sixth division and later of the First Army, participating in the Oise-Aisne and Meuse-Argonne operations. For his service in connection with the suppression of influenza epidemics in the American Expeditionary Forces, he was awarded the Distinguished Service Medal.

Annual Report of Children's Bureau

A summary of the annual report of the Children's Bureau of the U. S. Department of Labor lists recommendations based on activities of the bureau and on the increase in its work brought about by the Social Security Act. Under the heading "Social Security for Children," the report recommends: (1) a public welfare program extending throughout every state and including provision for public assistance for those whose economic needs cannot be met by private or public employment; (2) assessment of resources for medical care, especially care available for mothers and children; (3) study of methods of care for crippled children; (4) development of adequate medical and social services for blind and deaf children; (5) provision for feeble-minded, epileptic and psychopathic children, and (6) extension of the provisions of the maternal and child welfare provisions of the Social Security Act to Puerto Rico. The report repeats a recommendation previously made for an inquiry into maternal and infant mortality. Administration of maternal and child welfare should be developed especially along the following lines, the report points out: just distribution of financial responsibility, wise leadership from the larger units, flexibility of programs, and staunch adherence to the merit system of appointments. The report finally urged ratification of the Child Labor Amendment to the Constitution by the remaining states necessary to put the amendment into effect and development of better methods of administering the law.

New Army Medical Officers

As a result of a recent examination, the following officers of the reserve corps have been commissioned as first lieutenants in the medical corps of the regular army:

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| Robert J. Benford, Brooklyn, N. Y. | Gottlieb L. Orth, Fort Belvoir, Va. |
| Albert A. Biederman, Fort Leavenworth, Kan. | Donald B. Peterson, Grand Marais, Minn. |
| Theodore M. Carow, Fort Thomas, Ky. | William J. L. Porcher, Denver, Colo. |
| Edward A. Cleve, Fort Knox, Ky. | Kyle A. Radtke, formerly Fort Townsend, Wash. |
| William F. Conway, Washington, D. C. | Merrill J. Reeh, Sultan, Wash. |
| Lester Orville Crago, Fort Benjamin Harrison, Ind. | Weldon K. Ruth, Fort Sill, Okla. |
| Warren H. Diessner, Oswego, N. Y. | Dean Schamber, Fort Snelling, Minn. |
| Claude C. Dodson, El Paso, Texas. | Lewis C. Shellenberger, Carlisle, Pa. |
| Charles J. Farinacci, Baltimore, Md. | Albert W. Shiflet, Casper, Wyo. |
| Edwin M. Goyette, Northfield, Vt. | Scott M. Smith, Shreveport, La. |
| Alfred A. Grebe, El Paso, Texas. | James P. Sullivan, formerly at Chevy Chase, Md. |
| Robert J. Hoagland, San Antonio, Texas. | Myron J. Tremaine, Youngstown, N. Y. |
| William F. Holmes Jr., Fort Sill, Okla. | Harold V. Weatherman, Fort Douglas, Utah. |
| Rex C. House, Lawton, Okla. | Edward R. Wernitznig, Bellefonte, Pa. |
| Eugene C. Jacobs, River Forest, Ill. | William E. Wilkinson, Frankfort, N. C. |
| Bruno B. Jastremski, Winthrop, N. Y. | William D. Willis, Dallas, Texas. |
| Marshall N. Jensen, Omaha, Neb. | Paul O. Wells, San Antonio, Texas. |
| Douglas B. Kendrick Jr., Edgewood, Md. | Lloyd E. Gould, Grand Canyon, Ariz. |
| Ronald F. Kirk, Fort Logan, Colo. | Beverly Dixon Holland, Fort Stevens, Ore. |
| Emmert C. Lentz, Los Angeles, Calif. | Santino J. Lerio, Fort Howard, Md. |
| Lee P. Mayes, Cape Cottage, Me. | Donald E. Casad, Banning, Calif. |
| James G. Moore, Sault Ste. Marie, Mich. | Charles O. Bruce Jr., Lincoln, Neb. |
| Harold A. Myers, Des Moines, Iowa. | Nicholas F. Atria, Fort Benning, Ga. |
| Gus W. Neece, Fort Moultrie, S. C. | Joseph Rich, Newport, R. I. |
| Kenneth R. Nelson, Fort George G. Meade, Md. | |

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 3, 1937.

The Value of Irradiation in Malignant Disease

At the Royal Society of Medicine, Mr. Sampson Handley read a paper on the value of preoperation and postoperative irradiation in malignant disease. He could not draw any sharp line between radiation by x-rays and radiation by radium, though he thought the latter more effective in quality and subject to fewer drawbacks; but each method had its field. Mr. Handley mentioned three cases in which, subsequent to removal of internal abdominal malignant growths, nodular lumps appeared in the abdominal scar itself. Since radium can destroy massive implantation recurrences, it would a fortiori, if applied just after operation, destroy the microscopic cancer cells which are the seeds of recurrence. For this purpose Mr. Handley considered high voltage x-rays as effective as radium and more convenient. The facts of implantation recurrence alone provided a wide field for the postoperative use of high voltage x-rays. There were indeed few cases in which the possibility of implantation could be excluded. In all cases of gastric, intestinal or pelvic malignant disease, as well as in breast cancer and in operations for malignant glands in the neck, a short course of high voltage x-rays should be applied to the scar after operation. Some surgeons would prefer insertion of radium tubes in the wound at the time of operation.

Preoperative irradiation need hardly be considered with regard to implantation recurrence, unless it was believed that it could be made so effective that every cell in the growth could be deprived of the power of proliferation. But then operation would be superfluous. In cases of doubt whether operative removal of a disseminating growth was complete, the crucial question was whether it was better to apply supplementary radiation before or after operation. Mr. Handley referred mainly to cancer of the breast. In dealing with the question he had the difficulty that he never advised preoperative irradiation, except in rare cases as a possible means of converting a fixed inoperable growth into a mobile one. His reasons against preoperative irradiation were as follows: It involves delay in performing the operation, giving time for the deep microscopic extensions of the growth, its most dangerous part, to make further advance. Though the primary growth might shrink under the x-rays, the evidence was that dissemination was unchecked. Even by modern apparatus and methods it was difficult to convey to any considerable distance beneath the skin a lethal dose of x-rays to carcinoma cells. This applied to attempts to irradiate carcinoma cells in the pectoral fascia or muscle through a voluminous breast. But after removal of the breast even deeper layers, such as the intercostals and pleura, are brought near the skin and exposed to the full force of irradiation. The apical glands of the axilla and the internal mammary glands were so sheltered that Mr. Handley doubted whether they could be dealt with by any dose of x-rays that the overlying skin could tolerate. But the apical glands can be removed and the internal mammary glands can be treated at the time of operation by interstitial radium tubes. Mr. Handley had found the latter effective.

Mr. Handley considered that the best hopes for progress in treatment lay in public education as to the necessity for prompt treatment of suggestive lumps and in a closer study by radiologists, as well as by surgeons, of the details of dissemination, and in the routine application after operation of a short prophylactic course of x-rays at at least 180,000 volts.

A Bureau of Geographic Medicine

Correspondence has taken place in the *British Medical Journal* on the need for a bureau of geographic medicine. Dr. F. C. Eye, who began the discussion, said that clinicians must long have been tantalized by reading isolated observations such as "The cultured Chinese never suffer from high blood pressure." He wanted to know if such statements were reliable. He envisaged "The Central Bureau of Geographical Medicine," which would coordinate and digest such observations from all over the world. The suggestion was supported by Dr. W. P. Kennedy, professor of physiology in the Royal College of Medicine in the University of Baghdad, who has found significant differences between the blood of British subjects in Iraq and in Britain. The explanation had not been elucidated, but the facts appeared to point to climatic factors as responsible. Professor Kennedy has had considerable difficulty in finding literature on hematologic standards in different parts of the world. Prof. L. T. Ride, who occupies the chair of physiology in the University of Hong-Kong, points out that there is in existence an organization which to some extent meets the need expressed. Those who work among non-European races soon recognize that physiologic constants cannot be applied from one race to another. At the meeting of the International Federation of Eugenic Organizations in Zurich in 1934 this problem was discussed and the result was the formation of the Committee on Anthropological Physiology, of which Professor Ride is chairman. The aims are to stimulate the investigation of physiologic constants among various races, to make contact with the workers on this subject in different parts of the world, to ensure the use of similar methods so that comparative data may be of greater value, and to provide for meetings of the investigators. The committee has members in the United States (Prof. L. H. Snyder of Columbus, Ohio, Prof. F. G. Benedict of Boston), China, India, Japan, the Netherlands Indies, New South Wales, South Australia and Denmark.

The Cambridge Chair of Physiology

The Cambridge school of physiology has long been the leading one in Great Britain. The professor of physiology, Sir Joseph Barcroft, F.R.S., will this year retire. He has played a great part in maintaining the tradition of the school. His early investigations were concerned mainly with the carriage of oxygen by the blood and with chemical changes in the salivary glands and kidneys, which he found used more oxygen when active than when at rest and which liberated metabolites that controlled their blood supply. In order to study the gases in small samples of blood or other tissues he invented a differential manometer, known everywhere as Barcroft's apparatus. For many years he has represented Cambridge against Oxford in favor of the view that the passage of gases through the epithelium of the pulmonary alveoli is a simple physical process and that the lungs cannot take up oxygen unless its pressure in the air is greater than in the blood. In support of this view he led an expedition up high mountains and exposed himself for many days to low oxygen pressure in a glass box. He has shown that the spleen plays an important part in the circulation as a reservoir of blood, which is released in emergencies, and he has added much to our knowledge of the oxygen supply of the fetus in utero.

Sir Joseph Barcroft is succeeded by another eminent physiologist, E. D. Adrian, F.R.S., who is Foulerton research professor of the Royal Society. Before the war he worked at Cambridge with Lucas on the problems of the motor impulses in nerves. He left Cambridge and became resident medical officer at the National Hospital for Nervous Diseases. In 1919 he began his well known work "The Physical Basis of Sensation." He took advantage of the new methods for ampli-

fying electric currents and tapped the messages in nerves. He thus analyzed sense organs in a way that was not previously possible. In recognition of this work he received the Nobel prize for medicine in 1932. In 1935 he published another important work, entitled "The Mechanism of Nervous Action."

The Marie Curie Hospital

In 1929 a hospital, staffed by women, was founded in London for the radiologic treatment of women suffering from cancer and was appropriately named the Marie Curie Hospital, after the woman who discovered radium. Queen Mary, who is patron of the hospital, has opened in it new and enlarged laboratories. Lord Dawson, president of the Royal College of Physicians, who presided at the ceremony, said that this radium hospital, staffed by women physicians, had already done much excellent work. Of its thirty-nine beds, twenty-nine were devoted to the needs of uterine cancer. The results were encouraging. Of the cases taken at an early stage, disease was absent in as many as 85 per cent at the end of five years. Of the cases in which the disease was firmly established, the same freedom was shown in as many as 65 per cent. Even among those in whom the disease was advanced on reaching the hospital the results were encouraging, at times astonishingly so. Mlle. Eve Curie said that her mother had always been much interested in the work of the hospital, though she regretted that at its foundation it had no research laboratory.

Road Accidents in 1936

Details of the road accidents in 1936 have just been published. There were in Great Britain 198,978 road accidents in which persons were killed or injured, an increase of 3,086 over the preceding year. The persons killed numbered 6,561, an increase of fifty-nine, and the injured numbered 227,813, an increase of 6,087. Of the vehicles to which the accidents were attributed, private automobiles formed the largest group, with 64,529 accidents, an increase of 2,520 on the previous year. Pedal cycles were involved in 61,932 accidents, an increase of 1,493; motorcycles in 24,990, a decrease of 695. Of the 6,561 persons killed, 3,068 were pedestrians, an increase of thirty over the previous year. There were 1,498 pedal cyclists killed, an increase of ninety-eight. Of the injured, 74,576 were pedestrians, an increase of 399; 71,193 were pedal cyclists, an increase of 2,141. Fatal accidents numbered 6,359, an increase of forty-five. There were more in December (677) than in any other month.

The Protection of the Civilian Population Against Air Raids

As shown in previous letters, preparations for the protection of the civilian population against air raids go on unceasingly. Throughout the country men and women in large numbers are being trained in first aid and decontamination duties, and 300,000 air raid wardens are being appointed to direct the people in emergencies. A silver badge is being issued to men volunteers and a silver brooch to women. Gas masks are being turned out at the rate of 500,000 a week.

In a communication to the *Lancet*, Dr. J. A. Ryle, professor of physics in the University of Cambridge, points out that while so much is being done in the instruction of physicians, police and others in antigas measures, little is being done in arranging for the collection, sorting, evacuation and treatment of the numerous casualties that must occur in spite of all the measures taken. One or two large scale raids with gas, incendiary bombs and high explosives might easily fill all the hospitals of a city to overflowing, and the hospitals themselves might not escape damage. In addition to aid posts and clearing stations, fleets of ambulances would be needed, and a circle of schools and other suitable buildings well beyond the outskirts of exposed towns would have to be equipped as hospitals.

PARIS

(From Our Regular Correspondent)

April 3, 1937.

American Hospital of Paris in Need of Support

An earnest appeal to all American residents of France, as well as to those who are in the habit of passing several months of the year in this country, to contribute to the support of the American Hospital of Paris was made recently by Arthur T. Kemp, president of the institution, at the annual meeting of the hospital board of governors. An appeal was made to Americans who reside abroad or visit Europe to subscribe \$20 a year as ordinary members or \$500 as life members. The American Hospital, out of its special and general funds, rendered hospital services to needy patients unable to pay the usual hospital charges in whole or in part, representing in the aggregate an amount of \$68,897, or 1,501,972 francs, of free service at the present rate of exchange. Many improvements have been effected in the hospital during the last year, including a new ventilating system as well as dish-washing and sterilizing machinery in the kitchen, the establishment of a cafeteria for the nursing and office staff, and the addition of new equipment to the department of hydrotherapy. Mr. Kemp was reelected president and Mr. E. B. Close, who has voluntarily served as manager for the past three years, was thanked for his excellent work and reelected first vice president. Dr. E. L. Gros was reappointed chief of staff.

Operative End Results in Advanced Gastric Cancer

At the February 19 meeting of the Société médicale des hôpitaux, a series of cases were reported by Dr. René Gutmann in which gastrectomy for advanced cancer had been performed from three to twelve years ago. The presence of severe anemia should not be regarded as a contraindication, because with the aid of transfusions and operations under local anesthesia many patients can be operated on now who were considered poor risks formerly. As the result of eighty-eight gastrectomies for cancer performed at the Gosset clinic up to 1935, thirteen patients died during the first year, twenty-seven were living after two to five years, eighteen more than five years, and seven more than eight years after the operation. Extensive filling defects on radiologic examination do not mean that early recurrence is more likely to take place than when only small filling defects are found. A small cancer can be accompanied by extensive liver metastases and be fixed, whereas an extensive cancer may be found perfectly mobile without liver metastases. The most important point to determine in considering operability is how much of the stomach is not involved and where the resection can be done. With the present development of radiologic technic much information can be given as to operability, but the final decision as to the latter depends on the results of exploration of the upper part of the abdomen at the time of operation. The presence of enlarged lymph nodes alone is not a contraindication, because only half of them were found to be cancerous on microscopic study of the resected stomach as Professor Gosset's clinic.

Conquest of Tropical Diseases

An instructive lecture on the sanitary organization of the Italian army during its recent campaign in Ethiopia was given at the Sorbonne (University of Paris) February 21 by Prof. Aldo Castellani. Although there are many plateaus (up to 4,200 feet above sea level) in Ethiopia, the major portion of the military operations took place in the lower sandy or marshy regions under tropical conditions. The small number of deaths (599 for 500,000 men) is without precedent in the history of wars in an equatorial climate. During the World War the Serbian army lost 25 per cent of its active troops from typhus; hence a mortality of 100,000 for 500,000 men would not have been considered excessive for the Italian army. The latter had

135 base hospitals, fifty-five mobile hospitals, eleven stationary and fifteen motorized (mobile) radiologic centers, four large ordinary diagnostic laboratories, twelve disinfection centers, six disinsectization stations and 136 water purification centers. Special attention was given to the care of the teeth of the soldiers at odontologic centers. In addition, there were eight air conditioned hospital ships. The medical personnel included 2,500 physicians and pharmacists, 15,000 hospital orderlies and 2,584 nurses. The prophylactic treatment of malaria was carried out by giving large doses (0.65 Gm.) of quinine to every soldier and controlling its absorption by urine examinations. There were 1,941 primary malarial infections, 1,095 relapses and twenty-three deaths from pernicious malaria among this number of cases. Only 429 cases of dysentery required hospitalization and there were no deaths. The majority of cases were of amebic origin.

As the result of the routine use of an associated (typhoid, paratyphoid and cholera) vaccine combined with boiling and constant surveillance of drinking water, not a single case of typhoid was observed. The same was true of typhus exanthematicus, although there are 20,000 cases annually among the Ethiopian natives. There were seventeen cases of recurrent fever and only one of variola. Insolation was fatal in seven of twenty-three cases. The ample distribution of lemons and fresh meat prevented diseases such as beriberi, pellagra and scurvy, which were prevalent among native soldiers and their families. There were only five cases of tetanus and none of plague or cholera. War injuries caused the death of 119 officers and 980 soldiers. The death of twenty-two officers and 577 soldiers was due to disease, drowning and bites of insects and snakes. These statistics are a glowing tribute to military medicine and especially to Professor Castellani, the leading spirit in this sanitary organization.

Diagnosis of Paroxysmal Hemoglobinuria

At the February 12 meeting of the Société médicale des hôpitaux, two cases were reported by Brule, Hillemand and Gaube which show the difficulties in making a diagnosis of paroxysmal hemoglobinuria. The first patient was a man, aged 24, who on Nov. 3, 1934, had suddenly voided urine that appeared to contain blood. Examination of the urine revealed a marked albuminuria, some leukocytes and granular casts, but no red cells. The following day an intense icterus appeared. He was seen for the first time by Brule and associates sixteen days later. A subicteric hue was still present, the urine showed only urobilin, and the blood urea was normal. He left the hospital apparently well but returned Aug. 15, 1935, stating that he had noticed clay-colored stools. The urine again showed only the presence of urobilin, the liver was slightly enlarged, the spleen was normal and there was a slight anemia. A tentative diagnosis of hepatitis or incomplete common duct obstruction having been made, an exploratory laparotomy was performed with negative results. The subicteric color persisted but the general condition was greatly improved following a cholecystostomy. The patient returned fifteen months later with the history of having had two attacks of jaundice associated with very dark colored urine, but without acholic stools. He was readmitted to the hospital, where examination of the urine showed a hemoglobinuria. The subicteric color persisted in the intervals between acute periods of hemolysis. The blood study of this patient was taken up following presentation of the second case. This patient was a man, aged 52, who gave the history of malaria and who had been pensioned for what had been diagnosed as chronic hematuric nephritis. Since 1925, following every exposure to cold, dark red urine was voided. A tentative diagnosis was made, on the basis of this history, of paroxysmal hemoglobinuria. During the interval between attacks when the patient was first seen by Brule and his associates, nothing abnormal was found. The malaria had been

contracted during the war and there was a history of an attack of hemoglobinuric biliary fever. The tentative diagnosis of paroxysmal hemoglobinuria was confirmed (during the interval between attacks) by the positive Donath and Landsteiner reactions, which they consider pathognomonic when a patient is seen between the attacks of paroxysmal hemoglobinuria.

In the first of these two cases the blood study should have led to the diagnosis of hemolytic icterus because the two reactions cited appeared to be negative and the globular resistance seemed lowered. But in making these two reactions with all of the precautions so well investigated by Vidal, Abrami and Brule, these reactions will always be found positive in hemoglobinuria during an interval between attacks. The globular fragility is of no importance; hence this notion ought to be revised. If one takes the precaution to keep the red corpuscles constantly at a temperature of 37 C., the globular resistance will always be found normal. Vidal, Abrami and Brule have called attention to this detail for some time. In certain cases of hemoglobinuria, the slightest lowering of temperature suffices for the red corpuscles to be sedimented (fragilized) by the serum. These causes of error are not as well known as they deserve to be; hence all the reports of cases of paroxysmal hemoglobinuria with globular fragility and negative Donath and Landsteiner tests need to be revised. An essential difference exists between hemolysis with globular fragility as observed in true hemolytic icterus and the hemolysis due to action of the plasma as it is found in paroxysmal hemoglobinuria.

Infarct of the Mesentery and Small Intestine Due to Vascular Spasm

During the past two years, some instructive clinical and experimental observations have been reported by Professors Grégoire and Binet showing that in certain cases presenting the symptoms of acute occlusion of the mesenteric vessels, the underlying condition was of transitory character, the result of vascular constriction of vasomotor origin, which yielded to injections of epinephrine. At the February 3 meeting of the Académie de chirurgie Professor Grégoire added two analogous cases, observed respectively by Loverdos of Greece and by Asselin of Chateauroux, France.

In the Loverdos case a man, aged 68, had never been ill before. The onset was acute, with severe epigastric pain, nausea, small rapid pulse, rigid abdomen and symptoms of shock. The complete obstipation and the accompanying symptoms led to the diagnosis of acute intestinal obstruction. When the abdomen was opened a large amount of bloody serum escaped. One of the loops of small intestine presented a hemorrhagic appearance and the corresponding mesentery a greenish color. No observations were made as to whether a pulsation still existed in the mesenteric vessels of this loop. Some intravenous injections of 20 per cent sodium chloride and of epinephrine were followed by rapid recession of the symptoms of shock and recovery.

In Asselin's case a woman, aged 65, had acute abdominal symptoms that led to a diagnosis of intestinal obstruction, probably due to a neoplasm. Abdominal examination revealed a tender mass in the umbilical region. The clinical symptoms were those of severe shock, as in the recent case of Loverdos and the previously reported cases of Grégoire. A very fetid bloody fluid escaped when the abdomen was opened. Almost all of the small intestine was dark, almost greenish, and the corresponding mesentery presented a number of hemorrhagic foci resembling in some places gangrenous areas. There was marked congestion of the mesenteric vessels. The injection of 1 cc. of 1:1,000 epinephrine intravenously was followed almost immediately by the appearance of an almost normal color of the intestine and mesentery. The abdominal (parietal) incision was closed and 20 cc. of a hypertonic solution (20 per

cent) of sodium chloride given intravenously. The next day the symptoms of shock had disappeared, but colicky abdominal pain continued and the patient died four days after the operation. Necropsy was not obtained. In commenting on these two cases, Professor Grégoire stated that the sudden onset in a previously healthy person, as in the first case, differentiated it from that due to embolism or thrombosis of the mesenteric vessels. The weak, rapid pulse and marked shock that characterize an intestinal apoplexy are quite different from those of an incipient ileus due to occlusion of the mesenteric vessels. In the second case, operative intervention and the injection of epinephrine to combat the vascular spasm was too late to be of avail. Grégoire pleaded for abstention of the giving of morphine in acute abdominal cases. It relieves the pain but masks the underlying pathologic condition.

The Radiologic Appearance of Acute Pulmonary Edema

Only brief references can be found in textbooks on radiology to acute pulmonary edema. A case reported by Meldolesi, in which roentgenograms were made after a few hours, is the only one to be found in the literature; hence the report of another is of considerable interest. At the February 5 meeting of the Société médicale des hôpitaux, Marcel Lelong and Jean Bernard showed a number of films of a child 8 years of age suffering from acute pulmonary edema as a complication of acute nephritis. The pulmonary condition appeared suddenly at the onset of the renal conditions and was accompanied by hematuria, marked dyspnea and edema of the extremities. The acute nephritis was secondary to a severe throat infection. The chest films were taken not only at the height of the nephritis, but also during the period of recession of the acute renal symptoms. The chief radiologic feature of the acute pulmonary edema was a generalized disappearance of the pulmonary transparency, less in the peripheral portions than in the region of the hilus. The juxtahilar area was especially opaque, the shadow being uniform. Parallel with the improvement of the general condition, the lung opacity cleared up first at the periphery and then toward the hilus on each side. The opacity can be best explained as due to the transudate in the alveoli.

In the discussion, Laubry stated that acute pulmonary edema in this case was not of cardiac but of peripheral origin; i. e., due to the acute nephritis and hence of vascular origin.

BERLIN

(From Our Regular Correspondent)

March 29, 1937.

The Increase in Diphtheria

The National Bureau of Health has published figures which indicate that the number of diphtheria cases increased from 64,138 in the year 1932 (9.9 per 10,000 of population) to 149,971 in 1936 (22.4 per 10,000 of population). The morbidity from diphtheria has more than doubled since 1932. The opinion that physicians often fail to diagnose the disease correctly in its early stages and consequently resort to administration of serum at too late a stage is not supported by the statistics. The rise in the number of fatalities does indicate, however, that the patient's parents are prone to call in the doctor only after the disease has gained too great headway. It is the official view of the National Health Bureau that a vast majority of the diphtheria victims in 1935 could with certainty have been saved if they had received proper medical attention in time and if antidiphtheritic serum had been speedily administered. Education of the public can be carried on chiefly through the consulting centers for mothers and the welfare centers for nurslings and small children, as well as by the distribution of the pamphlets on diphtheria that were issued by the National

Health Bureau in 1935. If every case of diphtheria would receive specific treatment on the first or second day of illness, many fatalities would be avoided.

Congenital Dislocation of the Hip

Professor Gocht, Berlin, ordinarius in orthopedics, lectured on congenital dislocation of the hip before the Berlin Society of Pediatricians. He emphasized the importance of early diagnosis of any disturbance of growth in the iliac region. Serious alterations often ensue if a joint has been injured by reducing operations. Some damage is often unavoidable if the child is too old at the time of the reduction or if considerable displacement of the hip components has taken place. After early treatment of incipient or threatened luxation of the hip, the roentgen visualization ought not to reveal the slightest support for any pathologic process. Early diagnosis is facilitated by the following considerations: The leg in question appears somewhat too short; furthermore there will be a certain outward rotation, the movement of abduction is restricted, and the axial bearings of the leg pass by the acetabulum (in the middle of the ligamentum inguinale). The iliac region appears abnormally full. The most disparate types of femoral folds may indicate an incipient disease of the hip. There is normally no possibility of a displacement of the proximal end of the femur against the pelvis. Roentgen examination reveals that the caput femoris is abnormally small and that it stands apart from the acetabular fundus; the entire upper end of the femur is shifted up high against the region of the acetabulum (Y cartilage). The upper acetabular roof is steep. The earlier the diagnosis is established the more certain assurance of complete cure is vouchsafed, since all reduction maneuvers that have caused or might cause injury cease. Gocht recommends that the child patients' legs be kept in a spread position for some three months. In this way abnormal conditions are prevented and, in case an actual luxation exists, normal conditions of growth are again restored. In the discussion the physicians of the children's clinic pointed out that an asymmetry of the knee folds is a reliable early symptom, but this cannot be said of an asymmetry of the abductor folds.

Marriage Among Young Professional Men

At the suggestion of the expert advisers of the national ministry of the interior on matters of social and eugenic policy, a questionnaire survey of conditions among young professional men has been carried on in Saxony. Altogether 9,154 men submitted the filled-in blanks. Of these men 7,459 had completed their formal professional training. More than half of the men resided in the larger cities, the remainder in small provincial towns. Of the entire group, 57.4 per cent were unmarried. The most usual age at which the men married was the twenty-ninth year, whereas among the German population as a whole the most common age at time of marriage is 26. The peak of the birth rate for children of professional men also lay within the twenty-ninth year of the father's life. Of all young married professional men, that is, men under the age of 35, 51.9 per cent have no children. It is noteworthy that according to the information collected the thirty-fifth year was regarded as the crucial point of bachelorhood.

Early Recognition of Pulmonary Tuberculosis

A brochure for physicians on the early recognition of pulmonary tuberculosis has been published by the National Tuberculosis Committee. It ought not to be assumed, says the author, that a lung is free from tuberculous infection unless it has been so demonstrated by roentgen visualization. Therefore, roentgen examination should be made of (1) persons in whose ascendancy there has been a tuberculous taint or who have been exposed to tuberculosis; (2) persons who have been under a physician's care for a disorder of the respiratory sys-

tem (and of the larynx in particular) that has persisted beyond three weeks; (3) persons who within the past few years have had repeatedly to seek medical attention on account of "colds," acute bronchitis and similar disturbances; (4) persons who have suffered from an influenza, pneumonia or other disease of the respiratory organs, which has followed an atypical course; (5) persons who have suffered from a dry or a humid pleurisy (such patients should be observed over several years and subjected to periodic roentgen examination); (6) persons who cough up blood (not blood film in the mucus but liquid blood, even if only a few drops); (7) any patient who presents any other than pulmonary tuberculosis; (8) patients who present erythema nodosum and phlyctenae; (9) any patient who presents an anal fistula or a periproctical abscess; (10) all diabetic patients as well as all patients who present stubborn and obscure gastro-enteric disorders; (11) patients who suffer from an otitis media purulenta chronica the cause of which is not clear, and (12) patients who would be described as healthy but who complain of a symptom that might in any conceivable way be related to tuberculous infection.

BUENOS AIRES

(From Our Regular Correspondent)

March 1, 1937.

An Outbreak of Psittacosis

An outbreak of psittacosis recently occurred in Buenos Aires and the city of Tandil. The first patient came from Tandil to Buenos Aires for treatment, where he died after eighteen days. Some relatives and friends of the patient in Buenos Aires contracted the disease. Nine cases were reported, with two deaths. The physicians in charge of the cases made a tentative diagnosis of bronchopneumonia or infectious influenza and asked for laboratory tests. Professor Sordelli of the Instituto Bacteriológico of Buenos Aires made a bacteriologic diagnosis of psittacosis. The blood serum of five patients was sent to Dr. S. P. Bedson of the London Hospital at London, who found it intensely positive for the complement fixation test. No epidemic in birds at Tandil preceded the outbreak of psittacosis.

Trypanosomiasis

Cases of Trypanosomiasis cruzi in man have been reported in Argentina since 1924 by Muhlens, Zuccarini, Dios, Cyarzal and Salvador Mazza, who said that the infection followed a benign evolution and that the diagnosis was made accidentally during examination of the blood for malaria. Cecilio Romaña, however, reported fatal cases from Chaco of Santa Fe. Infection of the triatomas with Trypanosoma cruzi was verified in 1915 by Maggio and Rosenbusch. Trypanosoma infestation was found in 22 per cent of triatomas, which were included in a total number of 30,000 insects that were under examination for the infection. Trypanosomiasis in man, however, is rare. In the first three cases reported the parasites were found in the blood during examinations by the thick slide method in a total number of 15,000 blood samples. In 6,000 samples of human blood of persons living in Misiones the infection could not be found. The total number of cases of trypanosomiasis in man reported in Argentina is about seventy. White mice are more susceptible to the infection than any other animal. Dios and Vergreen in 1924 reported the results of inoculation with this infection in dementia paralytica patients who were inoculated with the blood of mice having experimental trypanosomiasis or with the blood of patients suffering from trypanosomiasis. The results of inoculation of trypanosomiasis in man were reported in 1924 by Muhlens and his collaborators in the *Revista del Instituto bacteriológico del departamento nacional de higien.* Trypanosoma cruzi was found in the blood of four out of seven persons who were inoculated by the subcutaneous route. The patients showed no definite symptoms of the infection. In some cases there was fever. The presence

of unilateral intense palpebral edema and conjunctival irritation found in some cases point, according to Romaña, to a conjunctival port of entry of the infection.

Pneumothorax Previous to Operation for Hydatid Cysts of Lung

Profs. Pedro Escudero, Ricardo Finochietto and José Arce advise the induction of artificial pneumothorax before doing an operation for hydatid cysts of the lung (*Semana méd.* 27:517 [Oct. 14] 1920). Since Professor Arce has given much attention to developing the method, it has been called by some writers the Arce method (Landivar, A. F.: *Semana méd.* 44:26 [Jan. 7] 1937). The subject was recently discussed before the Sociedad de Cirugía of Buenos Aires. Dr. Arce said that he has performed artificial pneumothorax as a preliminary step to operation in hydatid cyst of the lung in forty-two cases, with thirty-eight recoveries and four deaths. In thirty-three of the cases there was no infection. In thirty cases the recovery was uneventful.

New Faculty of Medicine

The structures now occupying the site of the new Faculty of Medicine were expropriated and will be demolished presently. The executive branch of the government has approved the project of constructing a nineteen story building at a cost of 12,000,000 pesos (\$3,140,000). The headquarters of the class rooms of histology and odontology were moved to private residences in order to leave a fourth part of the building of the faculty ready for the beginning of the construction of the building of the ministry of justice and public education.

Pan-American Medical Association

A branch of the Pan-American Medical Association was recently established in Buenos Aires with the board of directors made up of Drs. G. Araoz Alfaro president, José Arce vice president, Valls secretary, and Houssay, Zambrini, Puente and Saralegui directing members.

Personal Items

The following have been given the degree of doctor honoris causa: B. A. Houssay of São Paulo, P. Belou of Rio de Janeiro and J. Arce of Rio de Janeiro and of the Temple University of Philadelphia.

Dr. Camilo Muniagurria, professor of pediatrics at the Faculty of Medicine of Rosario and ex-president of the fifth National Congress of Medicine, is dead.

Marriages

SHELLEY RICE GAINES, Jacksonville, Fla., to Miss Claudia Norton Barret of Charlotte, N. C., in Clearwater, Fla., January 26.

JAMES SEARCY SNOW, Ann Arbor, Mich., to Miss Mary Farley Moody Boyles of New York, February 13.

DAVID BRYAN SLOAN to Miss Christine Katherine Futchs, both of Wilmington, N. C., February 6.

WILLIAM PATTON McDOWELL, Norfolk, Va., to Mrs. Loula Dean Rees, at Eufaula, Ala., January 23.

BERNARD GORDON SLIPAKOFF to Miss Miriam Harriet Kersline, both of Philadelphia, March 10.

JOHN ARTHUR SIEGLING to Miss Magdalen Keith Haskell, both of Charleston, S. C., March 10.

WILLARD F. GOFF to Miss Barbara Burwell, both of Seattle, at Port Blakely, January 17.

THOMAS SCOTT McDIARMID to Miss Audrey Dennison, both of Gadsden, Ala., January 31.

THOMAS J. STEWART to Miss Myrtle Tyer, both of Wynne, Ark., in December 1936.

FRED FALLS to Miss Anne Elmore, both of Lawndale, N. C., in February.

Deaths

David Alexander Stewart, Ninette, Manit., Canada; Manitoba Medical College, Winnipeg, 1906; member of the American Association for Thoracic Surgery and the American Clinical and Climatological Association; formerly associate professor of medicine (tuberculosis) at his alma mater; since 1910 member of the executive committee of the Canadian Tuberculosis Association and at one time its president; chairman of the public health committee, and past president of the Manitoba Medical Association; chairman of the committee of ethics of the Canadian Medical Association; superintendent of the Manitoba Sanatorium since its inception in 1908; in 1927 received the honorary degree of doctor of laws from the University of Manitoba, where he was a member of the board of governors; aged 63; died, February 16, at the Winnipeg (Manit.) General Hospital, of diverticulitis of the sigmoid.

Elbert Byron Swerdfefer, Denver; Denver Homeopathic College, 1904; practiced in Denver since 1904; member of the Colorado State Medical Society and the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; assistant professor of otolaryngology, University of Colorado School of Medicine; past president and vice president of the state board of medical examiners; served during the World War; aged 60; otolaryngologist to the Children's, Denver General, Colorado General and St. Luke's hospitals, Colorado Christian Home, and State Home for Dependent Children, and the Presbyterian Hospital, where he died, February 9.

Mark M. O'Meara @ Kingston, N. Y.; Albany Medical College, 1903; member of the Associated Anesthetists of the United States and Canada; fellow of the American College of Surgeons; past president of the Ulster County Medical Society; chief of staff and surgeon to the Benedictine Hospital; member of the associate surgical staff of the City of Kingston Hospital; consultant to the Ulster County Tuberculosis Hospital, Kingston, and the Veterans Administration Facility, Ellenville; consulting surgeon to the Memorial Hospital of Greene County, Catskill; aged 62; died, February 6, of nephritis and chronic endocarditis.

James Ernest Stokes @ Salisbury, N. C.; University of Maryland School of Medicine, Baltimore, 1892; member of the Southern Surgical Association and its vice president in 1917; fellow of the American College of Surgeons; served during the World War; chief of staff and secretary to the board of trustees of the Rowan Memorial Hospital, formerly known as the Whitehead-Stokes Sanatorium, which he owned and which was also known at one time as the Salisbury Hospital, where he was chief of staff; aged 64; died, February 1, of angina pectoris.

John Thomas Axtell @ Newton, Kan.; Bellevue Hospital Medical College, New York, 1883; in 1913 member of the House of Delegates of the American Medical Association; past president of the Kansas Medical Society; member of the board of education, and for many years a member of the state board of health; fellow of the American College of Surgeons; secretary and past president of the Kansas State Hospital Association; consulting surgeon to the Axtell Christian Hospital; aged 80; died, February 20, in Inglewood, Calif.

William Jackson Young @ Louisville, Ky.; Kentucky University Medical Department, Louisville, 1903; formerly clinical professor of dermatology and syphilology at the University of Louisville School of Medicine; fellow of the American College of Physicians; on the staffs of St. Joseph's Infirmary, St. Anthony's Hospital, Jewish Hospital, Norton Memorial Infirmary and the Kosair Crippled Children's Hospital; aged 55; died, February 7, of heart disease.

Charles James Wetherbee, Twin Falls, Idaho; Detroit College of Medicine, 1901; member of the Idaho State Medical Association, American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; at one time mayor of Buhl; on the staff of the Twin Falls County General Hospital; aged 67; died, February 9, of coronary occlusion.

Frank Stanley Wasielewski @ Milwaukee; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; member and chairman of the board of trustees of the Johnston Emergency Hospital; member of the staff of St. Luke's Hospital; aged 62; died, February 3, in the Milwaukee Hospital, of carcinoma of the esophagus.

William Radcliffe Sitler, Suffern, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1875;

member of the Medical Society of the State of New York; health officer of the village of Suffern and town of Ramapo for many years; aged 83; died, February 5, in the Tuxedo Memorial Hospital, Tuxedo Park, of diabetes mellitus and cerebral hemorrhage.

Walter Scott Reed, Long Branch, N. J.; University and Bellevue Hospital Medical College, New York, 1900; also a druggist; formerly mayor of Long Branch, and member of the state legislature; for many years member of the board of education and school physician; on the staff of the Dr. E. C. Hazard Hospital; aged 72; died, February 28, of carcinoma of the prostate.

J. Swan Taylor, Johnstown, Pa.; Eclectic Medical Institute, Cincinnati, 1881; member of the Medical Society of the State of Pennsylvania; veteran of the Spanish-American War; for many years physician for the city schools, and physician and surgeon for the Pennsylvania Railroad; aged 78; died, February 12, of bronchopneumonia.

Amos Ellsworth Wyley Stueve, Cincinnati; Miami Medical College, 1909; member of the Ohio State Medical Association; on the staff of St. Francis Hospital for Incurables; for many years medical examiner for the Metropolitan Life Insurance Company; aged 51; died, February 16, of myocarditis.

Robert Pillow Jr. @ Columbia, Tenn.; Vanderbilt University School of Medicine, Nashville, 1914; past president of the Maury County Medical Society; on the staff of the King's Daughters' Hospital; health officer of Columbia; served during the World War; aged 50; died, February 13, of heart disease.

Henry B. Swartwout, Port Jervis, N. Y.; Bellevue Hospital Medical College, New York, 1885; member of the Medical Society of the State of New York; formerly mayor and president of the village; on the staff of St. Francis Hospital; aged 76; died, February 5, of myocarditis and influenza.

Samuel Lord Smith, Binghamton, N. Y.; State University of Iowa College of Medicine, Iowa City, 1882; member of the Medical Society of the State of New York; also a pharmacist; formerly city councilman and mayor of Binghamton; aged 78; died, February 15, of chronic myocarditis.

Reid Patterson, Charlotte, N. C.; North Carolina Medical College, Charlotte, 1912; member of the Medical Society of the State of North Carolina; on the staffs of the Mercy and St. Peter's hospitals; aged 48; died suddenly, February 16, in Atlanta, Ga., of coronary occlusion.

Joseph Rieger @ Dunkirk, N. Y.; Chicago Homeopathic Medical College, 1893; past president of the Chautauqua County Medical Society; member of the local board of health; on the staff of the Brooks Memorial Hospital; aged 71; died, February 4, of bronchopneumonia.

Abbott Revere Walker, Frostburg, Md.; Howard University College of Medicine, Washington, D. C., 1902; member of the Medical and Chirurgical Faculty of Maryland; was local health officer for many years; aged 66; died suddenly, February 1, of a cerebral hemorrhage.

Gustave Llewellyn Stoehr @ London Mills, Ill.; State University of Iowa College of Medicine, Iowa City, 1909; also a pharmacist; past president of the Fulton County Medical Society; aged 59; died, February 1, in the Methodist Hospital, Peoria, of pneumonia.

Seelye William Little, Rochester, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1891; author of a book entitled "Nephritis"; aged 69; died, February 27, of coronary occlusion and cerebral hemorrhage.

George Washington Russell, Waterbury, Conn.; Bellevue Hospital Medical College, New York, 1895; for many years president of the Waterbury Medical Association; aged 64; on the staff of St. Mary's Hospital, where he died, February 4, of pneumonia.

Thomas De Witte Peters, Flora, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the Indiana State Medical Association; served during the World War; aged 51; died, February 11, of heart disease.

Ernst Zimmermann, Quincy, Ill.; Washington University School of Medicine, St. Louis, 1897; fellow of the American College of Surgeons; aged 60; on the staff of the Blessing Hospital, where he died, February 10, of cardiovascular renal disease.

James Bernard Hackley, Purcellville, Va.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the Medical Society of Virginia; aged 60; died, February 4, in the Loudoun County Hospital, Leesburg, of mesenteric thrombosis.

Henry Burnham Savage, New York; Long Island College Hospital, Brooklyn, 1875; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1877; aged 83; died, February 1, in Fort Worth, Texas, of pneumonia.

Robert Freeman Oliver, Bradford, N. H.; University of Vermont College of Medicine, Burlington, 1890; member of the New Hampshire Medical Society; aged 74; died, February 5, of coronary thrombosis and chronic nephritis.

Frederick John Watson, Chicago; Rush Medical College, Chicago, 1893; member of the Illinois State Medical Society; aged 67; died, February 2, in the Presbyterian Hospital, following an operation for carcinoma of the colon.

Ralph Emerson Youmans @ Harrodsburg, Ky.; Kansas City (Mo.) University of Physicians and Surgeons, 1921; aged 39; died, February 15, at the Good Samaritan Hospital, Lexington, of renal calculus in solitary kidney.

Edward Arnold Schilz @ Grand Lodge, Mich.; Michigan College of Medicine and Surgery, Detroit, 1897; served during the World War; member of the state board of health; aged 64; died, February 1, of angina pectoris.

John Baston Acton, Eubank, Ky.; Louisville and Hospital Medical College, 1908; member of the Kentucky State Medical Association; formerly postmaster; aged 56; was found dead, February 26, of cerebral hemorrhage.

Phillip Henry Sigrist, New Philadelphia, Ohio; Cleveland Medical College, 1892; formerly school superintendent and county school examiner; aged 73; died, February 7, of arteriosclerosis and cerebral hemorrhage.

Helen Margaret Reinherr, Pittsburgh; University of Pittsburgh School of Medicine, 1935; aged 26; resident physician to the Allentown (Pa.) State Hospital, where she died, February 13, of acute cyanide poisoning.

Thomas Joseph Fenton, Spadra, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; aged 58; died, February 10, in Los Angeles, of Ludwig's angina.

William George Beattie, Tracy, Calif.; College of Physicians and Surgeons of San Francisco, 1900; aged 71; died, February 14, in the Dameron Hospital, Stockton, of chronic myocarditis and hypernephroma.

George F. Thomas, Peebles, Ohio; Medical College of Ohio, Cincinnati, 1888; member of the Ohio State Medical Association; for many years bank president; aged 80; died, February 20, of acute hepatitis.

D. Euclide Rainville, Boulder, Mont.; M.B., Laval University Faculty of Medicine, Quebec, 1888, and M.D., 1890; aged 71; died, February 28, of bilateral nephrolithiasis, acute urinary retention and uremia.

Charles Batty Small, Saratoga Springs, N. Y.; New York Homeopathic Medical College, 1883; formerly coroner, health officer and city physician; aged 76; died, February 7, of angina pectoris and arteriosclerosis.

Henry Harry Schiller, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1935; aged 26; died, February 17, in the Mount Sinai Hospital, of sarcomatosis.

William Edgar Callison @ Winchester, Ind.; Yale University School of Medicine, New Haven, 1927; on the staff of the Randolph County Hospital; aged 37; died, February 26, of pneumonia.

Llewellyn Bert Raymond Smith @ Jeannette, Pa.; University of the City of New York Medical Department, 1895; aged 67; died, February 14, of myocarditis and interstitial nephritis.

Wilfred Elwell Pearce, Boynton, Okla.; Epworth College of Medicine, Oklahoma City, 1910; also a pharmacist; aged 59; died, February 17, in a hospital at Wichita, Kan., of arteriosclerosis.

Francis Michael O'Donnell, Newton, Mass.; Harvard University Medical School, Boston, 1887; member of the Massachusetts Medical Society; aged 73; died, February 10, of myocarditis.

Osmond Peter Thompson, Chicago; College of Medicine and Surgery, Chicago, 1909; aged 63; died, February 28, in the Illinois Masonic Hospital, of gastric ulcer and hemorrhage.

Henry Herbert Smith @ New Haven, Conn.; Jefferson Medical College of Philadelphia, 1877; aged 82; died, February 23, of arteriosclerosis and bronchopneumonia.

George Wilson Todd, New York; Columbia University College of Physicians and Surgeons, New York, 1901; aged 70; was found dead, February 20.

Bureau of Investigation

RE-DUCE-OIDS

Serious, and Even Fatal, Results Attributed to Reducing Nostrum by Physicians

During the past several years the Bureau of Investigation has received innumerable inquiries from physicians and laymen regarding a reducing nostrum euphemistically named "Re-Duce-Oids." A few examples follow:

An Illinois physician writes:

"I am seeking information about a nostrum which is known as Re-Duce-Oids, made by Scientific Laboratories of America and sold in Chicago by Walgreen drug stores. A young woman came into my office this morning with swollen, itching hands and felt very faint and dizzy after taking thirty-three out of a bottle of forty of these, according to directions . . ."

From an Indiana physician:

"Have you any information regarding Re-Duce-Oids? These are reducing capsules made by the Scientific Laboratories of America, San Francisco. Recently we had a post-mortem examination upon a patient



REDUCE-OIDS
Controllable FAT
"I LOST 55 lbs. of FAT"

writes Michigan Lady

Is fat making your life miserable? Many other women who used to sit back ashamed and uncomfortable because people laughed and called them "Fatty" have now found a new joy in living after freeing themselves from the burden and embarrassment of overweight. Don't let controllable FAT rob you of happiness!

READ WHAT THESE WOMEN WRITE:

Mrs. L. R. Schulze, 721 S. Pleasant St., Jackson, Miss.

Mrs. J. Fullis, Honey Creek, Iowa, writes: "Lost 34 lbs. RE-DUCE-OIDS are pleasant to take."

RE-DUCE-OIDS are not a new experiment—they have been used by thousands of fat people. Sold for 22 years. Pleasant, easy to take. **IMPORTANT—RE-DUCE-OIDS positively DO NOT contain dinitrophenol.**

FAT GOES...or Money Back

Get your money back in full if you are not delighted with the results you obtain from RE-DUCE-OIDS.

who was admitted with a very high temperature, convulsions, and a history of having taken an unknown quantity of these reducing capsules. She died a few hours after admission, and post-mortem examination revealed little except a marked degeneration of the heart muscle. Analysis of the liver, stomach contents and kidney was made for heavy metals and dinitrophenol. We have done several incomplete assays on some of the material that has been found in the reducing capsules, but as yet have been unable to connect the death of the patient with any of the material found. We hope that perhaps your department has done a complete assay and can give us information regarding the contents of these capsules."

From a Nebraska physician:

"I have just seen a patient who has been taking a popular reducing remedy with rather disastrous effects, and should like to know if you have investigated this substance and know anything about it. Whatever you can tell me will be appreciated. It is called Re-Duce-Oids. The effect suggests thyroid. There is nothing on the label to tell what it contains. It is very extensively advertised on the radio."

From a Michigan physician:

"Do you have information as to the ingredients of Re-Duce-Oid capsules, made by Scientific Laboratories of America? One of my obese patients took eight bottles of these over a period of a year, then became very weak and developed a pulse rate of 140-160, gradually became delirious and died. She had profuse sweats and for a time we thought she had developed an acute thyrotoxicosis."

From a New York chemical laboratory:

"We are wondering whether you have the analysis of the chemicals named Re-Duce-Oids, manufactured by the Scientific Laboratories of America. These capsules have been called to our attention by one of our physicians as causing eruptions and blotches on the skin of one of the patients. They were advised to take these pills for reducing by a pharmacist. It would lower the cost of my examination of these pills to the doctor if you have some information already on hand, therefore I would appreciate any cooperation that you may offer."

Re-Duce-Oids have been advertised to the public as an easy and pleasant method of removing excess weight. The copy has followed the usual stereotyped formula: a svelte female clad in step-ins and brassière, in what the copywriter no doubt considered a graceful pose calls attention to such slogans as "Reduce controllable fat," "Is fat making your life miserable? Many other women who used to sit back ashamed and uncomfortable because people laughed [they used to laugh when someone body or other sat down at the piano] and called them 'Fatty' have now found a new joy in living after freeing themselves from the burden and embarrassment of overweight. Don't let controllable fat rob you of happiness!"

The advertisements in periodicals were supplemented by pamphlets on "How to Reduce." In one such pamphlet put out by the Scientific Laboratories of America, 746 Sansome Street, San Francisco, the exploiter states:

"Re-Duce-Oids, in the true sense of the word, are not a medicine."

Just what constitutes a medicine in the true sense is not explained. Re-Duce-Oids are represented to the obese as

"a gland food put up in a capsule form . . . they provide a balanced food for the underfed glands which cause the fat condition."

Just which glands are provided with this "balanced food" is cleverly left to the reader's imagination. In addition to the periodical advertisements and pamphlets, the exploiter sent a form letter of the "Dear Friend" type to prospective purchasers.

Laughable indeed was the appeal:

"Do not accept any preparation in place of Re-Duce-Oids, for Re-Duce-Oids is the only reducing preparation that carries the certified Seal of Approval of the Scientific Laboratories of America."

for the American Medicinal Products, whose name appears on the trade package, is at the same address as the Scientific Laboratories of America—746 Sansome Street, San Francisco.

Once the victim has parted with his money for Re-Duce-Oids, he learns from the directions inside the trade package that

"we do not claim that Re-Duce-Oids will reduce everyone; they are intended for controllable fat."

The victim also learns that

"anyone having tuberculosis, diabetes or exophthalmic goiter"

should not take Re-Duce-Oids.

The exploiter also has a laxative pill to sell—"Alax"—which is recommended to Re-Duce-Oids users as a means of accomplishing the best results.

The A. M. A. Chemical Laboratory has recently examined a specimen of Re-Duce-Oids and reported as follows:

LABORATORY REPORT

"One original package of Re-Duce-Oids (American Medicinal Products, Inc., San Francisco, Calif.) was submitted by the Bureau of Investigation to the A. M. A. Chemical Laboratory for examination.

"Statements on the label were as follows:

40
Re-Duce-Oids
Capsules
See Directions Reverse side
Genuine
Price \$2.00

American Medicinal Products, Inc.
San Francisco, Calif.

"The directions given were to take one capsule daily for six days, then one capsule two times a day for six days, then one capsule three times a day with all following bottles.

"The package contained forty red-colored capsules which, with the contents, weighed approximately 0.35 Gm. each. The contents of each capsule averaged 0.3 Gm. Examination of the contents showed the presence of a yellowish amorphous substance possessing a slightly bitter taste, and color indicative of desiccated glandular substance.

"Qualitative tests indicated the presence of sodium, potassium, organic material, lactose, iodides, and small amounts of phenolphthalein and chlorides. Such substances as dinitrophenol, bladderwrack and starch were not found. Spectrographic analysis showed the presence of sodium, potassium, and a trace of calcium.

"The product was submitted for examination to a pharmacognosist, who reported the presence of protein and cellular material as desiccated glandular substance. Vegetable tissue was not found.

"The capsules apparently consisted of gelatin with a phthalein coloring material.

"Quantitative determinations on the powder yielded the following:

"Loss in weight (100 C.).....	5.14 per cent
Ash	1.74 " "
Sulfate ash	10.58 " "
Total iodine (I).....	13.2 " "
Potassium (K+)	3.64 " "
Sodium (Na+)	0.8 " "
Nitrogen (N)	2.08 " "
Reducing substances (as lactose).....	74.7 " "
Phenolphthalein	0.5 " "
Water insoluble material.....	11.97 " "

"From the foregoing, it is concluded that the product consists largely of desiccated glandular material, probably thyroid (approximately 12 per cent), potassium iodide (approximately 16 per cent) and phenolphthalein (approximately 0.5 per cent), with lactose as the excipient. This may be calculated to approximately 0.036 Gm. (0.55 grain) of glandular material; approximately 0.05 Gm. (0.77 grain) of potassium iodide; and approximately 0.0015 Gm. (0.023 grain) of phenolphthalein in the contents of each capsule. The dose after two weeks (three capsules a day) will contain approximately 0.11 Gm. (1.65 grains) of glandular material; approximately 0.15 Gm. (2.31 grains) of potassium iodide; and approximately 0.0045 Gm. (0.07 grain) of phenolphthalein."

Re-Duce-Oids, when stripped of the folderol of the enterprising copywriter, appears to be just another obesity nostrum depending essentially on thyroid, potassium iodide and a small amount of phenolphthalein. In addition, there is the usual nostrum trick of taking another product—one of the firm's proprietaries, to be sure—for insuring sufficient laxative action. The dangers of uncontrolled administration of such drugs have been mentioned repeatedly in these columns.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PURPURA HAEMORRHAGICA—COUNTING BLOOD PLATELETS

To the Editor:—I have had under my care a girl, aged 4, who suffers from what I have diagnosed purpura haemorrhagica. The clotting time is normal but the bleeding time is greatly prolonged. A wound will bleed for from twenty to thirty minutes. I have performed no platelet count as yet but intend to do so. The child has been given six direct blood transfusions to date. She has been given prescriptions for vitamins and iron and ammonium citrate in large doses. This child has been ill for five months. To date there has been no tendency to natural recovery. Is there any treatment that is worth trying except for the operative splenectomy? What method of blood platelet counting do you consider best for one who has not been accustomed to this method? Please omit name.

M.D., Idaho.

ANSWER.—There are a number of therapeutic measures besides splenectomy which have been used with apparent success in idiopathic purpura haemorrhagica. It is difficult to evaluate definitely the various methods of treatment because the disease is often characterized by spontaneous remissions of symptoms. In persistent cases, blood transfusions may be necessary not only for benefit of transfused platelets but also for relief of anemia. Intramuscular injection of whole blood or sterile human serum in 20 cc. amounts may result in a thrombocytosis and amelioration of symptoms. A high vitamin, protein and fat diet, along with liberal use of calcium orally or given intravenously and intramuscularly (10 cc. in 10 per cent solution) is advised for supportive treatment. Snake venom given intradermally, as advised by Peck, has been used successfully by Greenwald in children. The number of cases treated in this manner is too few to afford a basis for saying anything definite about the ultimate success of this form of therapy. Greenwald used diluted moccasin snake venom (obtainable through Lederle's Laboratories). The initial dose was 0.1 cc. of a 1:3,000 solution in physiologic solution of sodium chloride administered intradermally; this was gradually increased to 0.4 cc. in two cases and to 0.6 cc. in the third

case. The injections were given every other day at first and later every third or fourth day; the duration of the treatment varied from four weeks to five months. Active bleeding stopped in the three patients after the third or fourth injection.

Recently Rudisill gave a very optimistic report (*THE JOURNAL*, Dec. 26, 1936, p. 2119) on the successful treatment of essential thrombopenic purpura by the use of roentgen rays over the spleen. While the opinion as to the uniform success of this procedure is not shared by other investigators, it is worthy of trial. The following technic was advised by Rudisill: Voltage, 200 kilovolt peak; tube current 4 milliamperes; filter 0.5 mm. of copper plus 1 mm. of aluminum; roentgens per treatment 200 measured in air; roentgens per minute, 10; area exposed, anteriorly over the spleen; size of the field, 20 cm. circular.

It is important to remember that thrombocytopenic purpura may occasionally be a symptom of some other disorder, as leukemia, myelophthisic and aplastic anemias, infection, chemical poisoning or allergy (symptomatic purpura haemorrhagica). These should be ruled out.

One of the difficulties with platelet counting in clinical practice is that the more accurate and reliable methods are not sufficiently simple and the more simple methods are not sufficiently accurate and reliable. The one method that is relatively simple and avoids many of the inaccuracies common to a great many recommended is that of Olef (*J. Lab. & Clin. Med.* 20:416 [Feb.] 1935). His procedure is as follows:

The hand is immersed in warm water and opened and closed for exercise to produce active hyperemia and facilitate a rapid flow of blood when the finger is punctured. The palmar surface of the finger is cleansed with soap and water and dried with alcohol and ether or acetone. A puncture is made sufficiently deep to obtain a fairly free flow of blood without applying pressure. A drop or two of the blood is quickly wiped away. A drop of the diluting fluid is placed over the puncture wound before the blood reaches the surface of the skin and the hand is quickly turned palmar side down. After a sufficiently large drop has escaped, the entire mixture is applied to the surface of 3 or 4 drops of diluting fluid contained in a paraffin cup. A suitable cup is prepared by melting the center of a small cube of paraffin with the heated end of a glass rod. The contents of the cup are then stirred with a wooden applicator, the end of which is coated with paraffin. The mixture is allowed to stand for a minute or two, stirred again and then is transferred by means of a clean paraffin-coated applicator to a scrupulously clean glass slide in three drops. A carefully cleaned cover slip is placed over each drop and after the preparations have been allowed to stand for from ten to fifteen minutes a relative platelet count is made, the oil immersion lens being used. In such a preparation the platelets appear as clear, isolated, highly refractile bodies with numerous spinelike processes projecting from their periphery and are either motionless or exhibit brownian movement. The platelets and erythrocytes are both counted in fields taken at random in different parts of the preparation until 1,000 red cells have been seen. A red cell count is done in the usual manner, and the absolute number of platelets per cubic millimeter is determined. This is calculated from the following formula:

$$\frac{\text{Patient's red count}}{1,000} \times \text{number of platelets counted equals number of platelets in 1 cu. mm. of blood.}$$
 Normal counts range from about 400,000 to 600,000 by this method.

The author empirically found the following diluting fluid to be most satisfactory:

	Gm. or Cc.
Sodium metaphosphate (Howe and French, Boston)	1.0
Sodium chloride	0.5
Dextrose	0.1
Distilled water	100.0

Keep in a cold place.

If this solution is not available, other platelet counting solutions, such as 14 per cent magnesium sulfate, 2 per cent sodium citrate in 0.9 per cent sodium chloride, or the solution of Rees and Ecker may be used but the results are not quite as satisfactory.

PROTECTIVE MASKS AGAINST INDUSTRIAL POISONS

To the Editor:—Kindly advise me regarding an efficient mask to be worn by a worker in the dry cell battery manufacturing industry. The materials used in this industry are graphite, manganese and sal ammoniac.

J. R. LONDON, M.D., Passaic, N. J.

ANSWER.—No respirators worn by workmen are continuously efficient in the absence of intelligent servicing, fitting, and so on. It is believed that, among other respirators, those manufactured by Willson Products, Inc., of Reading, Pa. (No. 400 or

No. 400L) and the Mines Safety Appliance Company, Pittsburgh (No. C-R 8393), will prove to be suitable. Correspondence with either of these firms may be expected to provide exact information.

PURIFIED PROTEIN DERIVATIVE IN TUBERCULOSIS TESTING

To the Editor:—There has been some controversy among the physicians concerning the value of purified protein derivative for tuberculosis testing of school children. This is being used according to methods outlined by the Pennsylvania Tuberculosis Society. The positive reactions are all given physical examinations and the chests are roentgenographed. I should like to know the degree of accuracy and the value of such testing. I am anxious to get the best possible advice regarding this test, as through some of our physicians it has gotten into the columns of the daily newspapers and is creating considerable comment. I should like to have something definite from you so that I can present it at the next meeting of our county society and try to get it straight before the public. Please omit name.

M.D., Pennsylvania.

ANSWER.—Purified protein derivative, as well as old tuberculin, employed in the testing of school children, is a specific test for determining the presence of the primary tuberculosis complex in the child's body. The test is dependent on the fact that, when the primary complex is developing, the tissues of the body become sensitized to the protein of the tubercle bacillus. As long as the tubercle bacilli in the body remain alive, the sensitiveness of the tissues is maintained, and as long as this sensitiveness is present, tuberculin or purified protein derivative introduced into the layers of the skin results in a reaction at the site of administration which consists of an area of edema or induration, usually surrounded by an area of hyperemia. As far as is known, there is nothing in nature which is taken into the human body that is capable of sensitizing the tissues to tuberculo-protein except tubercle bacilli themselves. The bacilli of the bovine type will sensitize the tissues of the human body just as truly as those of the human type. The test therefore, is one for sensitization of the tissues, which is brought about by the presence of tubercle formation in the body. Therefore, the test is highly diagnostic of the presence of tubercles.

Not long ago it was said that approximately 90 per cent of the children of high school age had been infected with tubercle bacilli and therefore were positive reactors to the tuberculin test. However, in recent years through pasteurization of dairy products, eradication of tuberculosis among cattle herds, and isolation and treatment of large numbers of persons with tuberculosis in communicable form, infants and children have been so protected that large numbers of them have grown to adult life without becoming infected. Indeed, in many states less than 15 per cent of school children, including those of high school age, react positively to tuberculin. In Pennsylvania only about 20 per cent of the school children have been infected, except in certain sections of cities, such as Philadelphia. Obviously, therefore, the administration of the harmless and inexpensive tuberculin test almost immediately eliminates 80 per cent of the school children of Pennsylvania as far as further examination for tuberculosis is concerned. However, the fact that a child's tuberculin test is negative today does not necessarily mean that it will be negative in six months or a year; therefore, the 80 per cent who react negatively on first being tested should be retested annually as long as they remain negative.

When tubercle bacilli first find lodgment in the body, there usually develops what is known as a primary complex. This consists of the disease which develops at the site of lodgment, as well as that caused by bacilli carried from the original lesion by way of the lymphatics to the regional lymph nodes, where they are imprisoned.

The positive tuberculin reaction provides two significant facts concerning the individual, the first being that the positive reactor has at some time been in contact, either directly or indirectly, with a person or an animal suffering from tuberculosis or acting as a carrier or spreader of tubercle bacilli. This information is of extreme value, since many persons who transmit tubercle bacilli to others are not ill and the disease is not suspected. When a school child is found to react positively to the test, all the close associates should be carefully examined in an attempt to find the source. When this is done, not infrequently the healthy appearing individual in whom disease has never been suspected may be found to be the carrier. In such cases the disease at the source may not have advanced beyond the point at which it can be treated successfully. By finding such a case, therefore, a double service is rendered: First, the child may be protected against further exposure; second, the person with the communicable tuberculosis may be treated successfully in a reasonably short period of time.

The second fact of great value is that every child who reacts positively to the tuberculin test has or is developing the primary tuberculosis complex somewhere in the body. There is no particular advantage in searching for the location of this complex during life, for it is frequently located in parts of the body that do not lend themselves to special phases of the examination, such as the x-ray film. Moreover, the areas of disease which constitute the complex may not be sufficiently large so that the physical examination or the x-ray film will bring them to light. However, the fact has been well established that children who have the primary complex are far more likely to fall ill from clinical tuberculosis as adolescence approaches and thereafter than those who have not developed such a complex during childhood. Therefore, knowing through the positive tuberculin reaction that such a complex exists is sufficient reason to recommend that every child who reacts to the tuberculin test in a positive manner be most carefully examined, including the use of the x-ray film, as adolescence approaches, and if no clinical disease is detected the examination should be repeated at least annually. The fact has been reasonably well established that, after the reinfection or clinical type of tuberculosis has produced lesions sufficiently large to cast shadows which can be visualized on the x-ray film, there is a period of two or three years before symptoms appear. However, when symptoms do appear, approximately 80 per cent of such lesions are in the moderately or far advanced stage. They are not only disseminating tubercle bacilli but are difficult to treat successfully, whereas during the early stages of the disease, when it can be detected among positive tuberculin reactors by serial x-ray film examination, it may be treated successfully before bacilli are being disseminated to others and before symptoms make their appearance. The program in effect now in so many places, including Pennsylvania, consists, first, of administering the tuberculin test to as many school children as possible; second, seeking the sources or the persons who infected the children reacting positively and treating or isolating such persons; third, keeping all infected children under very close observation, including annual physical and x-ray film examinations, as the period of adolescence approaches and thereafter, and treating all who develop lesions of clinical significance at the earliest possible moment. This program, when carried to its logical conclusion, is more effective in tuberculosis control than any or all other methods combined.

WASSERMANN FASTNESS AND MARRIAGE IN SYPHILIS

To the Editor:—In March 1936, a woman, aged 24, single, was treated for intractable vomiting, lasting about three weeks, which was stopped by rectal administration of bromides and liquids. Physical examination revealed nothing of note, and a blood Wassermann test taken after recovery showed Kolmer's antigen strongly positive and the precipitin test definitely positive. Treatment was started with sodium bismuth thioglycollate, 3 grains (0.2 Gm.) twice weekly. Twelve injections of the latter were followed by eight intramuscular injections of sulfarsphenamine, each 0.3 Gm., following which a moderately severe exfoliative dermatitis occurred, clearing up on sodium thiosulfate. Neoarsphenamine could not be given because of small veins. Until the present the patient has had, in addition, ten intramuscular injections of bismuth salicylate at weekly intervals, four weeks of self-administered rest, followed by six weeks of mercury rubs with potassium iodide, and a second rest of six weeks. She returned, and now a Wassermann test by another laboratory shows the Noguchi antigen 2 plus and the cholesterinized antigen 3 plus. She feels well, has gained 10 pounds (4.5 Kg.) and shows no signs of involvement of the nervous or cardiovascular system. A spinal fluid examination has not been done because of unwillingness on the part of the patient. I plan to give her another twelve injections of sodium bismuth thioglycollate followed by six more weeks of mercury rubs and potassium iodide and then advise three courses a year of a bismuth compound with rest periods between for the next two years. Is this a case of a Wassermann-fast patient? When may this patient safely marry? Has treatment been adequate, excepting for a spinal fluid survey? M.D., Louisiana.

ANSWER:—It is too early in the treatment course to say whether this patient is going to be Wassermann fast, and the data obtained to date are not sufficient to warrant such a diagnosis. It is necessary to do a spinal fluid test, a cardiovascular examination and a careful neurologic examination before it may be said that she is Wassermann fast. The term "Wassermann fastness" has become popular because it apparently is an easy means of explaining to a patient why the blood test remains positive, at the same time being consoling to the physician. This is an unfortunate situation, because Wassermann fastness is not a diagnosis but merely an accumulation of serologic reports. The significant point about Wassermann fastness is that it may occur in any manifestation of syphilis, and it may have much significance or may be of no concern at all. For example, Wassermann fastness in a patient with early syphilis who has been well treated suggests that there is an active focus of syphilis somewhere, in either the nervous or the cardio-

vascular system, and that effort should be made to demonstrate it and treat it accordingly. Likewise, a persistently positive Wassermann reaction in association with a positive spinal fluid is indicative of a resistant type of infection in the nervous system. On the other hand, if a diagnosis of latency is warranted, and is confirmed by repeated examinations during the prolonged treatment course, the positive Wassermann reaction that has not been influenced by the treatment course may have no significance. The positive test does not necessarily mean that the syphilis is active or that the patient is infectious.

Accordingly, when Wassermann fastness is suspected, a careful search should be made for its explanation in the nervous system and viscera, and if active evidence of syphilis is found, treatment directed to the complication, perhaps of a special type, is indicated. However, if no complications are elicited, it is not necessary to continue to treat the positive serologic test indefinitely.

This patient should not marry until she has had a negative blood and spinal fluid test for three years after treatment has been stopped. If she marries and becomes pregnant, treatment for syphilis should be started early in the pregnancy even though the serologic tests are negative. The treatment as suggested should be carried out for the next three years.

SENSATIONS IN MOUTH AND NEUROSIS AFTER TOOTH EXTRACTION

To the Editor:—A man, aged 72, complained that about six weeks following extraction of all his teeth in 1930 his gums began to feel stiff and numb; his tongue felt large, especially after waking, and his mouth dry (he was unable to expectorate). He also complained of pains and prickly sensations in the arms and hands and the legs and feet, with swelling of the feet. The latter I have never seen. A prostatectomy for a benign growth of the prostate was followed by bladder irrigations with mild protein silver and an Indian oil (?) for a while. Both testicles were badly swollen in the hospital at that time but now one is hard and the size of a walnut, while the other is apparently normal. Last summer he took electrical treatment for the legs and feet, with no relief as I intimated to him, but early last fall I found he was taking barbituric acid derivatives, which I had him stop and at present he does not complain of painful extremities. He gives the legs and feet hot soaks at night now. Last summer artificial teeth were advised. After several months he stated that if he took the plates out his mouth felt numb and contracted, causing some difficulty in opening his mouth. When the plates are replaced, the mouth feels numb. His appetite is good. The abdomen is protuberant. The heart and lungs are essentially normal. He takes a laxative. The blood pressure in July 1935 was 180 systolic, and the hemoglobin from 85 to 90. In September 1936 his blood pressure was 140 systolic, 90 diastolic. September 11 he stated that his mouth felt sore all over, especially under the sides of the tongue just posterior to the frenum. On the upper and lower bony ridge where the plates fit there is numbness and the mouth seems dry. The mucous membrane is normal and moist but the tongue is slightly swollen and is red and furrowed. He states that he raises considerable stringy sputum in the morning. (Three or four years ago a throat specialist stated that the throat was normal.) If he awakens in the night he takes a few slices of orange with relief from the dryness, although he thinks he sleeps with his mouth closed. In the past, he has eaten cough drops and hard candy to increase the flow of saliva, but he uses very little now. Medication now is 5 grains (0.3 Gm.) of methenamine, two, three or four times a day, and Schlotterbeck's Mist. Helonin Comp., a desertspspoonful in hot water two or three times a day. One 1½ grain (0.1 Gm.) tablet of amylal is taken at bedtime. Urinalysis shows a specific gravity of 1.013, acidity, a trace of albumin, no sugar, a few small round cells, a small to moderate amount of pus, rarely a hyaline cast, and an occasional erythrocyte. Blood examination reveals hemoglobin from 80 to 85 per cent, white cells 11,250, red cells 5,000,250, polymorphonuclears 51 per cent, small lymphocytes 32 per cent, eosinophils 6 per cent, mononuclears 7 per cent, myelocytes 4 per cent, platelets normal, and red cells very slightly hypochromic. X-ray examination shows the maxilla and mandible normal. The patient does not use tobacco or alcohol. What would be your diagnosis and treatment for this man? Please omit name.

M.D., Massachusetts.

ANSWER:—In a man of his age who has undergone such a serious operation and who has taken so many drugs over a long period, a possible neurosis must be considered. Then, too, he may have some degenerative changes, which may account for the symptoms involving the fifth and ninth nerves, resulting from sclerotic changes in the cerebral vessels, affecting the nutrition of the nerve centers.

The feeling of numbness of the gums, especially the upper, may be due to pressure of the denture on the posterior palatine nerve and branches of the fifth nerve (especially the posterior part of the plate and the border of the plate as it extends upward into the sulci) or reflection of the mucous membrane over the cheeks and lip. Quite frequently vulcanite plates, which do not conduct heat, produce a congestion beneath them. This condition is often relieved by a metal plate.

The soreness at the sides and base of the tongue is quite common and quite baffling. Infection of the lingual tonsils and lymphatic tissue is at times thought to be the cause, but usually

when this tissue is operated on the symptoms are increased. At times, either natural or artificial teeth cause an irritation; such teeth should be ground and polished. Operative or strenuous medical treatment is contraindicated and general hygiene, change of scene and surroundings, with efforts to get him interested in some definite line of thought and effort, will tend to make him less susceptible to sensory disturbances and thereby he will be less disturbed by them.

He was probably subjected to too much shock during the extraction of all his teeth and recovery therefrom, and the ordeal probably has remained uppermost in his mind.

His blood examination reveals a slight anemia and his white count seems to point to an infection somewhere. If his temperature should be taken three times a day at regular intervals and recorded, it might help to clear the picture.

At any rate, a general line of treatment tending to get him up to par is indicated.

TESTS FOR ALCOHOL IN BLOOD

To the Editor:—I was wondering whether I could obtain any information concerning the micromethod of Widmark for testing the content of alcohol in the blood. A problem has arisen concerning drinking drivers following automobile accidents. I am at the present time police physician in Batavia, with a population of 20,000 people, and I should like to know more about this method and how it has worked out. I would appreciate it very much if you would tell me where I might obtain such information.

W. C. SWASEY, M.D., Batavia, N. Y.

ANSWER.—The Widmark method of testing for alcohol in the blood is described in the *Biochemische Zeitschrift* 131:473, 1922. This procedure is being used extensively in medicolegal cases in Europe and has the advantage of requiring only a few drops of blood.

It might be advisable also to consider other methods; namely, that of Nicloux (*Bull. Soc. chim. biol.* 13:857 [Sept.-Oct.] 1931 and 16:1314 [Sept.-Oct.] 1934) and of Friedemann (*J. Biol. Chem.* 115:47 [Aug.] 1936).

Another simple method has been successfully employed in more than 400 cases of drunken drivers in Pennsylvania alone and is now being used in several other states. The method depends on the change in color of potassium dichromate produced by alcohol. Permanent color standards corresponding to definite quantities of alcohol can be made or can be purchased from the LaMotte Chemical Company of Baltimore. Either blood or urine may be tested, but the urine is to be preferred because of the ease of collecting specimens for medicolegal purposes, and because the alcohol in the urine more nearly approximates the alcohol in the spinal fluid than does the alcohol in the blood.

The finding of alcohol sufficient to produce mental or physical inferiority is necessary for the scientific confirmation of obvious intoxication.

TREATMENT OF HAY FEVER BY APPLICATION OF ALCOHOL OR PHENOL TO NASAL MUCOUS MEMBRANE

To the Editor:—Will you kindly describe and briefly discuss the method of local desensitization of the nasal mucosa by injection of alcohol combined with phenol or by surface application of pure phenol as mentioned in *Queries and Minor Notes* in *THE JOURNAL*, Sept. 12, 1936. Please omit name.

M.D., District of Columbia.

ANSWER.—In 1933 H. H. Vail (*Arch. Otolaryng.* 18:651 [Nov.] 1933) described the method of treatment of hay fever by nasal injections of alcohol. He used a needle 1½ inches in length and inserted it 1 inch into the anterior half of the lower turbinate, withdrawing the needle slowly as he injected 2 cc. of solution. He then injected about 0.5 cc. in the septum; 2 cc. was injected in each side. The solution consists of 4 cc. of 40 per cent alcohol with 1 cc. of procaine hydrochloride 2 per cent without epinephrine. The injections were made beneath the mucosa after cocaineization of the site of injection. Rarely was it necessary to make an injection into the midturbinate, and the olfactory region was carefully avoided.

Vail reported twelve cases, three of "rose fever" (grass hay fever), with complete relief. In the other nine patients, all of whom had autumnal or ragweed hay fever, five obtained marked relief and four no relief. In one of the five successful cases two injections were necessary and in another one, while there was complete relief from hay fever, the asthma was so bad that the patient had to go north. This investigator states that the injections are not as painless as does Leichenring (*Ztschr. f. Hals-, Nasen- u. Ohrenh.* 28:220 [May 26] 1931). The patient gets severe shooting pains through the temple, cheeks, nose and teeth for about fifteen minutes, with gradual clearing within twenty-four hours. The bleeding is not severe but is annoying and may also last for about twenty-four hours. There

is extreme blanching of the mucosa. Vail strongly disapproves of the injection of alcohol in the sphenopalatine ganglion for hay fever or vasomotor rhinitis. He believes that the injections of alcohol are worth trying in cases of hay fever in which pollen therapy has been unsuccessful and in which it is not possible for the patient to seek a more suitable climate. The effect of a successful injection lasts from six to eight weeks. The greatest drawback is the severe pain.

Leichenring has had good results in 80 per cent of the cases and advises yearly injections. He asserts that there is but little pain.

The surface application of pure phenol may be carried out as follows:

The midnose is to be cocaineized with from 4 to 5 per cent cocaine for ten minutes; then pure phenol is applied by means of a warm applicator. The entire mucosa is swabbed up to just above the level of the midturbinate. The patient should be cautioned to avoid hawking up the material so as not to cause a phenol burn of the posterior part of the nose. Before this treatment is started it is well to smear the nasal margins with petrolatum in order to prevent a phenol burn. Following the treatment there is considerable local reaction, which lasts a day or two and then a cast of the membrane comes out. The results are good in some cases and the action is similar to that of ionization.

DESENSITIZATION IN DERMATITIS VENENATA

To the Editor:—June 6 I saw a white man about 35 years of age, a foundry worker, who had been suffering with dermatitis venenata on both hands since June 2. He had tried home remedies such as sugar of lead, epsom salt and potassium permanganate with no result. He was given a prescription containing boric acid, powdered zinc oxide, glycerin and witch hazel, which he used for a week with no results. As he was unable to do his work as a molder, poison ivy extract, a product of the U. S. Standard Products Company, was given every other day, starting with an intramuscular dose of 0.5 cc., which was increased to 0.75 cc. and on the third and last day to 1 cc. There was very rapid clearing and scaling of the lesions on both hands. As his hands cleared, however, he began to be troubled with burning and itching sensations about the torso and legs, particularly about the feet. At first there was a demonstrable lesion at the site of the burning. The first visible evidence of the urticarial lesion was about the eyes and in the hairy portion of the face. This was greatly aggravated by washing and shaving. This swelling about the face persisted intermittently for a week or ten days. Since July 1 he has been troubled with intermittent but daily urticarial lesions. He has been back at work with the exception of the first week and apparently has less difficulty with the urticaria when he is working in the foundry and perspiring freely, although the burning sensation is quite severe, particularly when the men are pouring the metal into the molds. When his case first became severe, epinephrine was used, with partial relief, in 8 drop doses over a period of four or five days. An attempt was made to let him carry on with ephedrine sulfate three-eighths grain (0.025 Gm.) and amylal 1½ grains (0.1 Gm.) because of the itching and burning at night, which prevented him from sleeping. After a period of a week this had no results. From the beginning he was placed on an alkaline diet with large amounts of fruit juice and soda, with small doses of magnesium sulfate in the mornings to aid in elimination. In addition he was given calcium gluconate 60 grains (4 Gm.) a day for a period of about three weeks, at which time it was increased to 120 grains (8 Gm.). At the time it was increased, parathyroid extract was given intramuscularly in 20 units every other day. At present, after a period of ten weeks, he has urticarial spots, principally on his back, face and arm, some of which are spontaneous in origin; others were produced after pressure. His forearms, feet and legs, back and shoulders are frequently the site of intense burning sensations. I have tried to list the treatment in the order of his calls. In addition, however, I have used bran baths, calamine lotion, salve containing menthol and phenol, minute doses of ergot, a milk diet and various treatments. X-ray treatment has been suggested for the skin but was not tried on recommendation of a very competent radiologist. If you can give me any help in this, I will appreciate it. Please omit name and state.

M.D.

ANSWER.—Although calcium was tried, it may not have been absorbed. Calcium gluconate could be given intravenously and, through the same needle, from 5 to 20 cc. of blood withdrawn and injected intramuscularly. The calcium can be given every other day, the blood injected every sixth day.

Ergotamine tartrate, 0.001 Gm. three times a day by mouth, may be given for not more than four days. It sometimes gives lasting relief.

Histamine is recommended for desensitization. Fiessinger and Gajdos use a 1:10,000 solution of histamine hydrochloride in water on the positive electrode of a galvanic current of from 6 to 10 milliamperes for five to ten minutes. The positive electrode is placed on the epigastrium, the negative electrode held in the hand. These treatments are given every other day and often relief is obtained in two weeks. The action of the electricity on the stomach is so slight that no untoward result may be feared (Fiessinger, N., and Gajdos, A.: *La reactogénotherapie de l'urticaire recidivante par l'ionisation a l'histamine*, *Presse méd.* 43:35, 1913).

Glaessner recommends aminoacetic acid, 10 Gm. or even 15 Gm. daily, dissolved in water or lemonade, given before meals. He believes that it has a detoxifying action. It is a diuretic but has no unpleasant action, even in large doses. He reports excellent results after eight or ten days of this treatment. (Glaessner, K.: *Die Wirkung des Glycocols auf Urticarielle Zustände*, *Klin. Wchnschr.* 6:597 [March 26] 1927).

The therapy of urticaria was described by Bernard Fantus and Theodore Cornbleet in *THE JOURNAL*, Aug. 24, 1935, page 595.

BURN OF EAR WITH POTASSIUM CYANIDE SOLUTION

To the Editor:—I have been taking care of a steel temperer who in February 1936 accidentally spattered a solution of 45 per cent potassium cyanide into his left ear. The temperature of the solution was 1,500 F. Burns of the skin of the external auditory canal and erosion of the tympanic membrane took place. As time went on, complete destruction of the drum and malleus and incus occurred. In order to prevent atresia of the canal, a catheter was inserted. At the present time there is a tendency for the external auditory canal to close down unless a catheter is kept in place. A large amount of granulation tissue is present in the middle ear, which recurs quickly even after cauterization with trichloroacetic acid and removal by the punch method. Of late the patient has complained of attacks of dizziness, headache and staggering. There are no signs of labyrinthine disturbance, although this must be present from the nature of the symptoms. There is almost complete loss of hearing in the affected ear. The roentgenograms taken from time to time show only slight clouding of the mastoid cells. I am contemplating doing a radical mastoid operation, because of the atresia of the canal and because of the granulations and symptoms of irritation of the labyrinth. Can you inform me of the nature of the activity of potassium cyanide on living tissue, especially that of the ear, and whether any cases of this type have been reported in the literature? What can you suggest for further treatment?

HAROLD LIEBERMAN, M.D., Worcester, Mass.

ANSWER.—The injury that took place to the patient's ear in all likelihood was not due to any specific action of potassium cyanide. What took place probably would have happened had any other liquid of the same temperature been involved. It appears (Chronic Potassium Cyanide Poisoning, *Queries and Minor Notes*, *THE JOURNAL*, Sept. 26, 1936, p. 1070) that the cyanides externally are, as a rule, without special effect. It is quite proper to consider the performance of a radical mastoid operation because of the obstinate atresia of the canal and the chronic otitis media, and because conservative measures have proved a failure so far. The patient has wholly lost his hearing on the affected side, so that operation will not increase his disability in this respect.

ANORECTAL SINUS

To the Editor:—I have under my care a married woman, aged 42, white, whom I first saw professionally one year ago, when she complained of a rectal discharge and pain of two months' duration in the region of the rectum and lower part of the back. Her past history, except for a miscarriage ten years ago after a five months period of gestation, is essentially negative. The patient is 5 feet 8 inches (173 cm.) tall, weighs 140 pounds (63.5 Kg.) and appears to be in perfect health. The general examination is negative. The Wassermann and Kahn reactions are negative. Digital examination of the rectum revealed a small, indurated tender area on the posterior wall about 1½ inches from the anorectal junction. Speculum examination showed a sinus opening from which pus flowed freely. A probe was inserted, which led into an irregularly shaped shallow cavity, measuring perhaps 1½ inches in each direction. In November 1935, under ether anesthesia with a speculum inserted in the rectum, the sinus was enlarged by incision, the cavity curetted, and a gauze pack inserted. Since operation the cavity has failed to heal in spite of several office treatments consisting of curetting the cavity and cauterizing it with 10 per cent silver nitrate solutions. The Koch bacillus could not be found in scrapings from the cavity. There is no pus in the cavity at present. It bleeds freely on the lightest probing. I should like to know what further treatment should be instituted in the case to facilitate complete healing. Would it be safe to let it go entirely for a period of several months to see whether healing would occur? If published, please omit name.

M.D., Illinois.

ANSWER.—Any lesion at the anorectal outlet which fails to heal in a reasonable length of time, when properly cared for, should be regarded with suspicion. The tissues that were removed at the first operation should be sectioned and examined microscopically. If this is not possible, fresh tissue should be taken and subjected to careful microscopic examination. If the lesion involves a portion of the lower part of the rectum, as well as the anus, it may be an adenocarcinoma. If only the anus is involved, it is probably a squamous cell epithelioma. The latter is very malignant, and although it may disappear readily following radium treatment, the ultimate prognosis is very grave.

If the physician is dealing with an anal abscess that has originated as a simple infection of the anal crypts, he should be able to produce permanent closure by dissecting out the walls of the abscess and allowing the wound to fill in by granulation. Such a wound should be opened well at its

external margins so that drainage will not be interrupted, and although it is necessary to pack such a wound immediately after operation, the gauze should be removed within forty-eight to seventy-two hours and in its place light dressings, saturated with medicated solutions, should be substituted. The rectum should be irrigated following each evacuation of the bowel, and the wound should be dressed daily until it is entirely healed.

LOW CHOLESTEROL DIET

To the Editor:—I wish to have outlined a low cholesterol diet. Also, has there yet any literature accumulated on the influence of a high blood cholesterol on Wassermann fastness? P. J. DELANO, M.D., Chicago.

ANSWER.—Unfortunately the amount of work done in the field of investigation of the cholesterol content of foods has been relatively meager. The greatest dearth exists in the analyses of food products as eaten. This inadequacy renders an accurate prescription of a low cholesterol diet subject to much criticism.

Gleaned from the analyses available, a diet can be compounded by respecting the following two lists:

Foods Highest in Cholesterol*

Brains †	Liver †	Lard
Egg yolk †	Sweetbreads †	Meats and poultry
Fish roe †	Butter	Oysters
Kidney †	Fish	Suet

Foods Lowest (Negligible) in Cholesterol*

Breadstuffs	Nuts
Egg white	Sugars and syrups
Cereals	Vegetables
Fruits	Vegetable oils

* From Bridges, M. A.: *Dietetics for the Clinician*, ed. 3, Philadelphia, Lea & Febiger, 1937.

† Outstanding.

A casual survey of the literature fails to reveal any material on the relation of high blood cholesterol and Wassermann fastness.

HYDROCEPHALUS

To the Editor:—An infant, aged 3 months, has hydrocephalus, which was first observed three weeks after a normal delivery. The infant had, however, a spina bifida. There has been quite constant drainage from birth, but this is now quite completely healed over with epithelium. The baby's head since the first observation increased rapidly in size and circumference, in all ways giving the usual picture. At about 2 months of age the hydrocephalus seemed to be abating, but with increase in the amount of discharge from the lumbar spinal lesion. This was quite marked for almost a week, but as the spinal lesion healed over and there was little or no drainage, the head again is becoming more tense, although not enlarging much. Outside of a somewhat incomplete flaccid paralysis of the lower extremities (they are not developing with the rest of the body), there is little else in the way of paralysis. The bowels and bladder are under control. The baby eats, sleeps and seems to be gaining fairly well, although the stomach capacity seems not to exceed 3 ounces (90 cc.) of milk at a feeding. Can or should anything be done as to the hydrocephalus and the spinal lesion? If so, when? If the spinal lesion does not discharge more, and the hydrocephalus continues, should a lumbar tap or ventricular puncture be done (of course, by one competent)? What are the results of such treatment? Should physical therapeutic measures and position (molded splints) be carried out as in other cases of flaccid paralysis? What is the prognosis if one stands by, as is so often advised? The parents are resigned to what fate I have been able to inform them. Incidentally, they have other normal children and this one came many years (ten or so) after the preceding one. Please omit name and town.

M.D., Iowa.

ANSWER.—In any case of hydrocephalus it should be remembered that spontaneous arrest may occur at almost any stage of the development of the condition. If spontaneous arrest occurs at an early stage there may remain only a moderate enlargement of the head and no limitation of intelligence. The question of what to do and when to do it is difficult to answer in any given case. It is known that hydrocephalus not infrequently develops following a successful operation for spina bifida. Therefore, in the case in question, should an operation for removal of the spina bifida be successful, the hydrocephalic condition would probably be aggravated. Surgical treatment of the hydrocephalus would probably consist in an attempt to remove part of the choroid plexus, thus diminishing the source of the cerebrospinal fluid. Such an operation is a dangerous procedure and the mortality is high.

In cases of hydrocephalus combined with spina bifida, ventricular puncture would be the site of choice for draining the cerebrospinal fluid. The benefit of such drainage would be only temporary and each instrumentation would carry with it considerable danger of infection. The flaccid paralysis might be helped by simple splints. Any prognosis in such a case must be extremely guarded. When the condition develops

after birth and progresses rapidly, a fatal outcome usually occurs before the end of the first year. If measurements of the head are made at given intervals and the increase in circumference spontaneously ceases, a better prognosis is indicated. Such an arrest of the hydrocephalus is thought to be brought about by a diminution in the production of cerebrospinal fluid, so that an equilibrium with absorption by the meninges has taken place. In the case in question a watchful attitude rather than surgical intervention would seem the wiser course, in the hope that spontaneous arrest may occur before too great damage to the brain substance has been done.

TOXICITY OF CHROMATES

To the Editor:—A man, aged 45, has been working with dyes in an industrial plant for ten years. For the past nine years he has been troubled with what he calls boils of his neck, face and hands. Examination reveals an extensive but superficial induration with ulceration and purulent discharge on a large area of the back of his neck, with smaller patches on his face and hands. These have shown rapid improvement in a week's time with a simple soothing ointment and keeping the lesions covered while working. I am presuming there is some irritation to which he is exposed while at work. There have never been any lesions on part of his body covered by clothing. Patch tests were done with the various dyes that he has been using. Pyrogallol acid showed a marked skin reaction and potassium bichromate a mild one. The others were all negative. This man does the actual heating and mixing of the dyes. Would it be likely that the fumes of the pyrogallol acid cause skin irritation followed by secondary infection? As I believe that potassium bichromate is nonirritating, could he have developed a sensitivity to this substance which might be a causative factor? Could you make any recommendations for future prevention, as it is not practical for him to change his occupation? Please omit name if published.

M.D., New York.

ANSWER:—Contrary to the opinion expressed in this query, solutions of potassium bichromate are directly irritating both to the broken and to the unbroken skin. However, "chrome holes" seldom become secondarily infected. Chromates and chromic acid are hydrolyzed with such difficulty that some bactericidal action long remains at the site of local injury. As suggested in the query, a few workers become sensitized to the action of chromic acid and its compounds. Patch tests, unless made with high dilutions of chromium compounds or chromic acid, will provide an apparent positive reaction as a result of direct irritation. Almost all dye workers are exposed to a variety of skin irritants. It is believable that if the described disorder is in truth the result of work exposure, mixed irritants probably are responsible rather than any one specific dye or other chemical present. Conditions are made worse by high temperatures. The pyrogallol acid is a skin irritant, but it is not believable that full responsibility can be placed on this one substance. In fact, due consideration should be given to the possibility that this workman, like hundreds of others, suffers from a furunculosis, unrelated to work as the cause. An extensive discussion of skin irritating dyes may be found in the publications of Schwartz of the United States Public Health Service.

RECURRENT NASAL POLYPS

To the Editor:—A patient of mine, a boy aged 17 years, has been operated on sixteen times in five years for nasal polyps, which always have recurred on the same site of the nose. He has been seen and treated by many a specialist in the field and nobody seems to know of any possible way to avoid such recurrences. The last surgeon spoke of some allergic studies of the case, but as far as family history, life and occupation of the patient go there is no hint of any possible allergy. I heard sometime ago of some operation to reline, so to speak, the nasal passages with some artificial membrane, transplant or grafting, but I did not read anything about it in any medical paper. I would appreciate information or suggestion about the most recent radical treatment for nasal polyps. Kindly omit my name.

M.D., New York.

ANSWER:—The situation described is common in the experience of every rhinologist. One cannot determine in every case what the underlying reason is for the presence of polyps, and hence for their recurrence. Complete studies to determine idiosyncrasy to foods, inhalants and other irritants should be made but are often disappointing. Apart from this, the fact that polyps recur is no reason for becoming unnecessarily despondent. A few polyps at a sitting may be removed in the office to give relief for weeks or months. If the patient is able to breathe freely through his nose, the presence of a few small polyps cannot possibly harm him.

Neither irradiation nor operation nor relining the nasal passages with artificial membrane, transplanting or grafting (the last suggestion is not familiar to us) can hold out promise of total relief. Removing the polyps as completely as possible and using radium locally has been highly recommended. Best of all, perhaps, if recurrences are frequent and troubling, would

be an external operation on the ethmoids and antrums, if they are involved, with widespread removal, under direct inspection, of the diseased mucous membrane. Even this, in the hands of the best men, has been found disappointing on occasion.

INFECTION AND CARBOHYDRATE TOLERANCE IN PERSONS WITH DIABETES

To the Editor:—I am a diabetic patient, with blood sugar down from 266 to 214. I am mentally clear, feel better, and had a carbuncle excised one week ago. Will the blood sugar and urinary sugar (I am getting 20 units of insulin) go away or will it stay high until the carbuncle is healed? I am mentally clearer and that should be a good criterion. Please omit name.

M.D., Illinois.

ANSWER:—Infection almost invariably decreases carbohydrate tolerance in diabetic persons and renders the administered insulin less effective. It is good practice, therefore, to increase the amount of insulin given to a diabetic patient who is suffering from an infection until the glycosuria disappears and the blood sugar hovers about the normal range. As the infection clears up, the insulin should be progressively reduced as warranted by the decreasing diabetic manifestations. Hence it would be wise not to wait for the healing of the carbuncle to allow the hyperglycemia and glycosuria to improve. However, if one did wait, the time at which improvement in tolerance would occur depends more on the time at which absorption of toxic products from the carbuncle ceased than on the complete healing of a clean granulating area.

THRESHOLD OF IRRITABILITY—USE OF HYDROCHLORIC ACID IN PERSISTENT DERMATITIS

To the Editor:—In the Sept. 12, 1936, issue of THE JOURNAL, in answer to a question captioned "Persistent Dermatitis" (p. 899), mention is made in the last paragraph of giving calcium lactate with lactose and diluted hydrochloric acid. Would you kindly explain: 1. What is meant by the "threshold of irritability" and the reason for giving calcium lactate and lactose? 2. Why is hydrochloric acid given? Please omit name.

M.D., New York.

ANSWER:—1. The threshold of irritability is the barrier that prevents a latent irritability from becoming manifest. When this barrier is lowered by any cause such as overwork, dissipation or infection, the susceptible tissue shows the evidence of irritation. When the threshold is raised again by rest, physical or mental hygiene or in any other way, the symptoms of irritation subside and the irritability becomes latent. Calcium is given to increase the cell content of this metal, which causes the cell to become less easily irritated. The lactose during digestion releases lactic acid, which aids the absorption of calcium.

2. Hydrochloric acid decreases the alkalinity of the organism and aids the absorption of calcium.

PRENATAL SYPHILIS

To the Editor:—I am interested in an evaluation of the prospects for good health, fecundity and healthy offspring of a man, aged 24, with congenital syphilis who contemplates matrimony. The patient first came under my supervision when 21 years old, suffering from an ulnar bursitis. He had Hutchinson's teeth and a two plus blood Wassermann reaction, but no other recognized stigmas. There is a presumptive history of maternal prenatal syphilitic infection, untreated before or during pregnancy. The patient is the only offspring. There is no history of postnatal syphilitic lesions or treatment, and the pegged teeth were the only clues present before the bursitis developed. The bursitis promptly disappeared when injections of neoarsphenamine were begun. Thirteen injections of 0.4 Gm. were given, as well as nine injections of 0.2 Gm. of sodium bismuth thioglycollate. The Wassermann reaction was unchanged but the patient did not submit to further treatment until two years later, when he developed a depression neurosis. Then seven injections of tryparsamide 2 Gm. were given, and again there was marked improvement in his condition. Six months later there was a severe gastroenteritis with jaundice and marked bilirubin, after some twenty tablets of a "patent" medicine (Brom-Quinine) were ingested in one day's time for a respiratory infection. The jaundice cleared up in one week with palliative treatment. The treatment has been, admittedly, inadequate; the stubborn Wassermann reaction does not concern me so much as the fear that the patient may be unfit for marriage from the eugenic and economic standpoints. Kindly omit name, city and state.

M.D.

ANSWER:—The patient is undoubtedly suffering from prenatal syphilis. His treatment is inadequate and one cannot say, even at the age of 24, that he is free from risk of such a serious complication, for example, as severe keratitis or perhaps a keratitis of both eyes. Moreover, the symptoms mentioned—a depression neurosis—may well be beginning dementia paralytica. It is unfortunate that a lumbar puncture has not been done on the patient as yet, and this should be carried out at once. A cell count, globulin test, gold colloid

curve and Wassermann test should be done on the spinal fluid. Certainly until this is done the matter of marriage must be absolutely set aside.

If the lumbar puncture is negative, the patient should have continuous therapy for one year of alternating courses of an arsenical and of a bismuth compound; for example, using neoarsphenamine or mapharsen in weekly doses for a series of ten injections, following this with weekly injections of bismuth salicylate 0.2 Gm. for a series of ten injections, giving two courses of the arsenicals and two of the bismuth. Along with it potassium iodide should be exhibited.

The blood Wassermann reaction in itself will probably be difficult to change to negative and does not have so much moment as the possibility of the involvement of the central nervous system. Certainly if the spinal fluid is positive in this case there should be consultation with some authority in this field before any more consideration is given to the matter of marriage.

PELOUZE TREATMENT OF GONORRHEA

To the Editor.—In reply to a reader's question as to Pelouze's treatment of gonorrhea in the March 20 issue of THE JOURNAL, the answer is substantially an abstract of one of Pelouze's chapters from his textbook. The reader is informed that in acute anterior urethritis strict adherence to anterior irrigations with permanganate solution 1:8,000 and instillations of a few cubic centimeters of a weak solution of mild protein silver bring about cure for 90 per cent of cases in six weeks and that 10 per cent require from one to three weeks' additional treatment. Pelouze is also quoted to the effect that from 75 to 85 per cent of the cooperative patients seen before the fifth day fail to have a posterior extension of the disease. While such results are devoutly hoped for, alike by patient and by physician, claims for six weeks cures from this routine are misleading and in actual practice seldom duplicated by others. It is wise to tread cautiously regarding the following advice from the textbook: "For posterior urethritis, in acute posterior urethral infection oral sedatives are given and all local treatment, except hot hip baths, is stopped until about a week after the patient has regained his bladder comfort. Then low pressure (not more than 3 feet) hydrostatic irrigations of 1:8,000 potassium permanganate are given into the bladder (no catheters or other urethral instruments are ever passed until it is safe to assume the gonococcus no longer is present). The bladder is only partially filled, the patient voids and this is repeated several times, some of the solution being left in the bladder at the end of the treatment. Treatments of this type are carried out two or three times a week." Those inexperienced had better avoid this type of treatment. Experienced urologists mostly avoid this type of treatment, so as not to encourage persistent prostatitis and vesiculitis and the likelihood of an acute, disabling epididymitis.

MAURICE MELTZER, M.D., New York.

PNEUMOCOCCIC MENINGITIS

To the Editor.—In Queries and Minor Notes in THE JOURNAL March 27, page 1136, you answer questions with regard to a case of pneumococcic meningitis. Although I am only a laboratory technician, I feel that I must criticize a part of your reply. To begin with, I have seen a patient with pneumococcic meningitis recover and am told that there are others in the literature. These are not just diagnosed as gram-positive diplococci but typed by the Neufeld method. The case I referred to was type XII pneumococcus from the spinal fluid. Then too I do not think you should advise pneumococcus antiserum without definitely stating that only after the type of pneumococci has been determined should the homologous type of therapeutic serum be administered. Pneumococcus curative serum is of value only when one has the same type serum available as the invading organism.

F. A. SENIOR, Department of Internal Medicine, Cincinnati General Hospital, Cincinnati.

"PROPER MANOMETRIC READINGS IN ARTIFICIAL PNEUMOTHORAX"

To the Editor.—In THE JOURNAL, March 6, I noticed that there was a request for information on the proper manometric readings in artificial pneumothorax. The answer to this question goes into some detail with regard to the use of pressure in artificial pneumothorax but I believe has entirely missed the real question. I believe the question was directed as to the correct readings in use today, that is, whether to be read as shown on the average manometer or whether to be doubled. In the article by Peters and others in the November issue of the *American Review of Tuberculosis*, there is considerable discussion on the proper pressures to use.

OSCAR LOTZ, M.D., Milwaukee.

INHERITANCE OF HEMOPHILIA—A LITERARY ERROR

To the Editor.—I thought you might be interested in what is apparently an error in medical knowledge displayed by Housman in his "Victoria Regina." In it he states that Victoria's husband, Albert, did not inherit the family strain of hemophilia because his mother had been indiscreet and his own father was not the king of Saxe-Coburg Gotha. The latter was apparently the hemophilic line. All the references I can find state that hemophilia is transmitted only through the female, and I would judge from that that the male offspring of a hemophilic father would be free unless the mother was also of hemophilic heredity.

J. R. RODGER, M.D., Bellaire, Mich.

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- KANSAS:** Topeka, June 15-16. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, 609 Broadway, Larned.
- KENTUCKY:** Louisville, June 9-11. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.
- MAINE:** Augusta, July 6-7. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.
- MARYLAND:** *Medical (Regular).* Baltimore, June 15-18. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.
- MASSACHUSETTS:** Boston, July 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.
- MICHIGAN:** Ann Arbor and Detroit, June 9-11. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-204 Hollister Bldg., Lansing.
- MISSISSIPPI:** Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.
- MISSOURI:** St. Louis, June 3-5. State Health Commissioner, Dr. H. F. Parker, State Capitol Bldg., Jefferson City.
- NEBRASKA:** *Basic Science.* Omaha, May 4-5. *Medical.* Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.
- NEVADA:** Carson City, May 3-4. Sec., Dr. John E. Worden, Box 630, Carson City.
- NEW HAMPSHIRE:** Concord, Sept. 9. Sec., Board of Registration in Medicine, Dr. Fred E. Clow, State House, Concord.
- NEW JERSEY:** Trenton, June 15-16. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.
- NEW YORK:** Albany, Buffalo, New York and Syracuse, June 28-July 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.
- NORTH CAROLINA:** Raleigh, June 21. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.
- NORTH DAKOTA:** Grand Forks, July 6-9. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.
- OHIO:** Columbus, June 1-4. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.
- OKLAHOMA:** Oklahoma City, June 9-10. Sec., Dr. James D. Osborn Jr., Frederick.
- OREGON:** *Medical.* Portland, June 15-17. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 17. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.
- PENNSYLVANIA:** Philadelphia and Pittsburgh, July 6-10. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, Education Bldg., Harrisburg.
- PUERTO RICO:** San Juan, Sept. 7. Sec., Dr. O. Costa Mandry, Box 536, San Juan.
- SOUTH CAROLINA:** Columbia, June 22. Sec., Dr. A. Earle Rooser, 505 Saluda Ave., Columbia.
- SOUTH DAKOTA:** Rapid City, July 20-21. Dir., Division of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.
- TENNESSEE:** Knoxville, Memphis and Nashville, June 17-18. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.
- UTAH:** Salt Lake City, June 21-23. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.
- VERMONT:** Burlington, June 16-18. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.
- VIRGINIA:** Richmond, June 17-19. Sec., Dr. J. W. Preston, 24½ Franklin Road, Roanoke.
- WASHINGTON:** *Basic Science.* Seattle, July 8-9. *Medical.* Seattle, July 12-14. Dir., Department of Licensure, Mr. Harry C. Huve, Olympia.
- WEST VIRGINIA:** Fairmont, July 12. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Milwaukee, June 29-July 2. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.
WYOMING: Cheyenne, June 7. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS
SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners and Special Boards* were published in *THE JOURNAL*, April 24, page 1459.

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports 18 physicians licensed by reciprocity and 3 physicians licensed by endorsement on Jan. 5, 1937. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School.....		(1927)	Michigan,
(1936) Illinois			
Rush Medical College.....	(1935)	(1936)	Illinois
University of I.....	"	(1934)	Illinois
State University.....	"	(1928)	Iowa
University of I.....	"	(1927)	Kentucky
University of M.....	"	(1914)	W. Virginia
St. Louis University School of Medicine....	(1934), (1935, 2)		Missouri
Temple University School of Medicine.....	(1934)		New Jersey
University of Pennsylvania School of Medicine.....	(1933)		New York
Meharry Medical College.....	(1929)		Oklahoma
University of Texas.....	(1931)		Texas
Marquette University.....	(1932)		Illinois
University of Wisconsin Medical School.....	(1932)		Wisconsin
Medizinische Fakultät der Universität Wien.....	(1928)		New York
School	LICENSED BY ENDORSEMENT	Year Grad.	of
Harvard University Medical School.....	(1930),	(1933)	N. B. M. Ex.
University of Pennsylvania School of Medicine.....	(1929)		N. B. M. Ex.

Book Notices

Thirty-Fourth Annual Report, 1935-1936, of the Imperial Cancer Research Fund Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England. Paper. Pp. 43. London: The Fund, 1936.

This report of the director of the Imperial Cancer Research Fund, W. H. Gye, reflects again the many activities of the institution, which embrace cancer research in almost all its phases. Although many important confirmations have been made through the experimental work of the past year, no epochal results are found in this report. The main chapters to which contributions have been made during this period by the staff of the Imperial Cancer Research Fund are on carcinogenesis, on viruses, and on the study of the effect of radiation on the physiology of cancer tissues.

In the introduction to the report of the work on carcinogenesis, Gye tries to give this factor its proper place in the conception of cancer etiology, according to his well known ideas. It is again emphasized that the etiology of cancer presents two entirely different and mainly independent aspects: (1) the intrinsic cellular change that confers on a cell the property of malignancy (here called the proximate cause of cancer) and (2) the conditions acting from without on a normal cell that produce the "precancerous conditions of the tissues" (remote causes of cancer). According to this conception the latter prepare the area of tissue for the intrinsic cellular change by which a malignant cell is formed from a normal cell. The underlying assumption that the factors which confer on a normal cell the property of continuous and autonomous growth reside within the cell is stressed again in a paper by Cramer, Cancer in Man in the Light of Experimental Cancer Research.

The research on carcinogenic agents conducted during this year is particularly concentrated on the effect of radioactive substances and of hormones. The first phase is represented by the studies of Selbie, who confirmed former experiences of other authors of the carcinogenic power of thorium dioxide. The production of sarcomas, even with small amounts of thorium dioxide, indicates the danger of this agent if introduced into the human body.

The studies by Cramer and Horning regarding the carcinogenic power of estrogen have confirmed the experiments by Lacassagne in producing mammary cancer in male mice by this agent. They have furthermore demonstrated that painting of the skin with this agent also produced mammary cancer but not cancer of the skin, which indicates an organ specificity for these carcinogenic agents.

Besides the carcinogenic effect of estrogen, the application of this substance has given rise to very characteristic changes in other endocrine organs (increase in size of the islands of Langerhans in the pancreas, degenerative changes in the adrenals, changes in the pituitary gland which might proceed to the formation of adenomas of the anterior part). The clinical symptoms in the animals which have shown these changes resemble closely those observed after surgical removal of the pituitary gland, so much so that Gye states that "the prolonged application of certain oestrogenic hormones produces a functional hypophysectomy which morphologically is associated with an enlargement of the anterior part and a loss of its chromophil cells."

With regard to the carcinogenic power of estrogen, it is particularly stressed that there is no danger in the clinical application of these substances, since the dose therapeutically administered is too low.

In another line of investigation Cramer demonstrated the contrast between the susceptibility to mammary cancer and tar-induced cancer of the skin which, under certain conditions, even exclude each other. This therefore does not afford support to the belief of the existence of a general susceptibility to cancer. The observation that in animals with active mammary cancer the production of skin cancer by tar painting is very difficult indicates that the effect of a carcinogenic agent is conditioned by systemic factors, although in itself a localized process.

In the field of research on viruses in relation to cancer, two phases have been under examination. McIntosh had previously reported the successful transmission of tar tumors in fowls by cell-free filtrates. Foulds has repeated these experiments but could not reproduce the results. His experiments of transmitting dibenzanthracene tumors by cell-free filtrates out of these tumors failed. He could, however, immunize rabbits by injection of tissue of an avian dibenzanthracene tumor, as well as by the injection of cell-free extracts from these tumors. Both these injections produced antibodies in the blood of the immunized rabbits which had the power to neutralize the virus of the Rous sarcoma.

The other line of investigation concerning viruses is the study of rabbit papillomas by Selbie. This study demonstrates the surprising fact that it is possible to induce tumors by injection of cell-free filtrates of the benign papilloma but that the supposed virus disappears if the tumor changes into a malignant one.

In the field of the effect of radiation therapy, Crabtree has continued his studies on the effect of radiation of the respiratory and glycolytic systems on the cells. There is a selective action on certain specific cell mechanisms which are affected independently of one another. Tissues irradiated by body temperature slowly lose their respiratory power, whereas the glycolysis remains unaffected. Tissues cooled at 10 degrees or less show first the detrimental effect on glycolysis while respiration still remains unimpaired. Crabtree showed furthermore that the enzyme glyoxalase remains unaffected through radiation, even when the total glycolysis of the tumor is considerably reduced. This is important for the support of the theory in which glyoxalase plays no part in the transformation of sugars into lactic acid.

In Cramer's studies of irradiation of malignant cells with sublethal doses of radium, he could not produce an artificial radioresistance. The repeated transplantation and irradiation with sublethal doses showed a gradual decrease in the rate of successful inoculations, indicating that the effects of small doses of radiation are cumulative and that the period of recovery from slight damage is longer than has been assumed.

Transplantation studies by Selbie with two mouse tumors showed the factor of natural resistance to transplantation to be hereditary. This again supports the classic experiments of Little, Strong and Bittner in this country.

Georg Wilhelm Steller: *The Pioneer of Alaskan Natural History*. By Leonhard Stejneger. Cloth. Price, \$6. Pp. 623, with 31 illustrations. Cambridge, Mass.: Harvard University Press, 1936.

The subject of this biography was a physician, who was one of the greatest naturalist explorers in Alaska and a member of the expedition which in 1741 discovered Alaska for the Russian government. The author of the book followed Steller's course, checking over his observations and collecting a mass of material from Steller's own writings and from contemporary publications, on which this biography is based. The result is

a volume full of interesting revelations and most fascinating for all who have ever visited Alaska. It reveals the hardships of the early explorers in that territory and provides an account not only of Steller's work but also of the investigations made by the great Bering, whose name is indelibly associated with Alaskan geography. The book is beautifully illustrated with many colored plates, maps and charts. There are some medical references of special interest, and a series of appendixes of particular importance to naturalists. The bibliography is profound and an indication of the scholarly character of the work.

Die gynäkologischen Operationen und ihre topographisch-anatomischen Grundlagen. Von Prof. Dr. med. Heinrich Martius, Direktor der Universitäts-Frauenklinik, Göttingen. Paper. Price, 52 marks. Pp. 396, with 404 illustrations. Leipzig: Georg Thieme, 1937.

This ranks foremost as an operative gynecology. All gynecologic operations plus appendectomy, herniotomy and ureteral transplantation are described in detail. Particularly gratifying are the detailed descriptions of plastic operations and the intra-abdominal operations of round ligament shortening and sterilization as done by the vaginal route. The text is profusely illustrated with drawings and diagrams that in themselves are so well done that the knowledge of German is hardly necessary for a complete understanding of the anatomy and technic employed in the completion of the operations. Not only are the surgical procedures well illustrated, but every operation is described in an anatomic diagram showing the relationships between all the organs that may be encountered. This book can be recommended without reserve to all gynecologists, general surgeons who may encounter pelvic disturbances, and postgraduate students who are interested in learning gynecologic technic and anatomy. The diagrammatic drawings are of the best and in themselves provide a perfect textbook of gynecologic anatomy. The volume should be a part of the library of every physician who has occasion to invade the female pelvis for surgery.

Surgical Diseases and Injuries of the Genito-Urinary Organs. By Sir John Thomson-Walker, D.L., M.B., C.M., Consulting Urologist, King's College Hospital. Edited by Kenneth Walker, M.A., M.B., B.C., Lecturer in Venereal Diseases, St. Bartholomew's Hospital. Second edition. Cloth. Price, \$10. Pp. 974, with 341 illustrations. Baltimore: William Wood & Company, 1936.

In this excellent treatise on diseases of the genito-urinary organs, the high standard set in the original edition by Sir John Thomson-Walker has been well maintained by the present editor. Although adequate discussion of the various subjects in this field is included, emphasis has been laid on the surgical procedures involved in treating the various diseases. In spite of the fact that almost a thousand pages have been devoted to the various diseases of the genito-urinary tract, it was necessary to limit the discussion of many subjects to such an extent that in some instances it is inadequate. It is quite evident that our knowledge in this field is increasing so rapidly that separate monographs on the different subjects involved have become necessary in order to obtain thorough consideration.

In considering renal infection, the classification employed is somewhat elaborate and quite different from that adopted by most American urologists. It is of interest to note that the use of vaccines is still advocated. Although the important advances recently made in the treatment of infection in the urinary tract are referred to, they apparently were so recent at the time the book was published that they receive but scant consideration. This emphasizes the weakness of all textbooks in rapidly advancing fields such as urology in that the discussion of some subjects often becomes out of date before it is off the press.

In discussing the subject of renal tumor the classification is not in accord with recent views and could be greatly simplified. The term "hypernephroma" is retained and is regarded as distinct from adenocarcinoma, which in turn is differentiated from carcinoma. Tumors of the bladder are classified largely according to gross pathology. The cellular differentiation and classification of Broders, which is so widely accepted by American urologists, is not referred to.

The attitude of English urologists with regard to the treatment of renal mobility is interesting. English surgeons have always regarded this condition as amenable to surgery and, although it is recognized that some limitations should be made,

many of them seem to believe that nephropexy is indicated in most cases and that the urographic demonstration of stasis is not always necessary.

The discussion of transurethral (or "per-urethral" as the editor terms it) resection of the prostate gland is comparatively limited and quite inadequate. This is undoubtedly due to the fact that English urologists have been slow in adopting this method of removing prostatic obstruction. The editor states that in his opinion not more than 20 or 25 per cent of such cases will be amenable to per-urethral manipulation. This is quite in contrast to the experience and opinion of American urologists who have had broad experience in this field. Figures are quoted on the early failures and difficulties of a few American urologists, who with increased experience in the last few years have had results that are quite different.

Another illustration of the rapid march of urologic progress is shown by the absence of any mention of the treatment of gonorrhea and its complications by means of hyperpyrexia.

The chapters on diseases of the genitalia are quite complete, particularly in the description of surgical treatment. It is of interest to note, however, that no mention is made of the Aschheim-Zondek test in diagnosis of tumors of the testis. It may be said, however, that the book is an excellent treatise on the subject and deserves a place among the best of the rapidly increasing numbers of textbooks dealing with genito-urinary disease.

Sérothérapie antipoliomyélique d'origine animale (S. A. P.). (Selze années d'expérimentation clinique.) Par Auguste Pettit, professeur à l'Institut Pasteur. Paper. Price, 30 francs. Pp. 271, with 9 illustrations. Paris: Masson & Cie, 1936.

This is an account of the experiences in the laboratory and with the treatment of patients with acute anterior poliomyelitis by three types of animal serums produced by the author. A brief survey is given of the experimental background for the production of these serums. This is followed by a detailed account of the method of testing of the serums and their actual production in three hosts: a species of lower monkey, the chimpanzee and the horse. Concentration of these serums was practicable by a modification of Ramon's method for the concentration of pseudoglobulin, the antiviral activity being increased twentyfold. The last two thirds of the booklet is given to case reports, in the majority of which the serum (of one origin or another, mainly antiviral horse serum) was administered after the onset of paralysis. These reports taken individually or as a whole might well be compatible with the natural evolution of the disease. Indeed, the claims made for these serums in the conclusions, i. e., that paralysis is prevented when given in the preparalytic stage and that bulbar involvement and the spread of paralysis are halted when given after paralysis has set in, are not warranted on the basis of the evidence presented. In view of the capricious and treacherous course of this disease, in view of the larger number of preparalytic cases in which paralysis never occurs (about 80 per cent according to the American data) and in view of the unsettled state of even convalescent serum therapy in this disease, the use of an animal serum even though virucidal in vitro does not seem to be warranted.

Urology for Nurses. By Oswald Swinney Lowsley, M.D., F.A.C.S., Director of the Department of Urology (James Buchanan Brady Foundation) of the New York Hospital, and Thomas Joseph Kirwin, M.D., F.A.C.S., Attending Urologist of the Department of Urology (Janet Buchanan Brady Foundation) of the New York Hospital. In collaboration with the entire nursing staff of the Department of Urology of the New York Hospital. Cloth. Price, \$3. Pp. 493, with 101 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1936.

This is an excellent volume for its purpose. Not only is there a good historical review and general consideration of the subject, but also it is written in a manner that is easily understood. The chapters on the care of urologic instruments are especially to be recommended. Discussion of the relation of nurse to patient, especially as concerns venereal disease, is not forgotten. Adequate description of the various technical and laboratory procedures is included, so that the student can gain an understanding into their application. With the exception previously noted, the discussion of urology is quite complete and is satisfactory. Perhaps the poorest section of the book is that on urology in females. This is unfortunate as a great deal of the urologic treatment of females is performed

by nurses. It is probable that, even though the fly leaf states that reference to other books is unnecessary, for this work another urology had best be consulted. A complete glossary is appended, the only weakness being in the manner of synonyms. For example, Hunner's ulcer is the only term given for a condition known by a variety of terms with which the average nurse might not be familiar. The index seems satisfactory. In general it seems that this volume lives up to its glowing advertisement and is well worth the price asked. It would be extremely valuable for the nursing profession and would not even be out of place in the urologist's library.

The British Encyclopedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D. Volume II: Apraxia to Carriers in Infective Disease. Cloth. Price, \$12. Pp. 830, with 126 illustrations. London and Toronto: Butterworth & Co. (Publishers), Ltd., 1936.

This alphabetical consideration of medical practice proceeds from "apraxia" to carriers in infective disease. Among articles especially likely to attract wide attention are those dealing with arthritis, athletic injuries, birth palsies, blood examination, brain abscess, breast diseases, cancer, and carriers in infective disease. Volume II is just as handsome as the first volume from a typographic point of view. The material is printed on a fine paper stock, arranged on the pages for easy reference, beautifully illustrated with many colored plates, and written by authors who have achieved repute in the fields with which they are concerned. As in the first volume, the distinctly British character of the work is reflected by the use of the British Pharmacopeia and a failure to recognize many recent American medical contributions. There is a separate index to volume II, and an exhaustive index of the complete system will be made available when the series is completed.

Stammering. By Elsie Fogerty, Principal of the Central School of Speech Training and Dramatic Art. Cloth. Price, \$1.25. Pp. 64, with one illustration. New York: Greenberg, 1936.

This little handbook is divided into four chapters, dealing with the development of stammering in the child, curative work for young children, curative work at school age, and self cure at a later age. The author says that "stammering is a nervous trouble," and she attempts to give it an adlerian explanation, which may have some basis in fact but is entirely inadequate. The reference to fear is, on the whole, well handled, but the excellent work done by Ferenczi on the relation of tic to speech, and Coriot's studies in stammering are ignored. The last two chapters, outlining methods of treatment, appear to be good from the standpoint of breathing and vocal exercises, but again, as in the theoretical section, the author's opening sentence, "Stammering is a nervous trouble," is almost forgotten and this aspect is unfortunately handled.

Die anatomischen Namen: Ihre Ableitung und Aussprache. Von Professor Dr. Hermann Triepel. Anhang: Eigennamen, die Früher in der Anatomie verwendet wurden. Neu bearbeitet und entsprechend den neuen anatomischen Namen ergänzt durch Dr. med. et phil. H. Stieve, o. ö. Professor der Anatomie in Berlin. Eighteenth edition. Paper. Price, 3.90 marks. Pp. 89. Munich: J. F. Bergmann, 1936.

This is a guide to anatomic nomenclature and has had considerable success in previous years. Of special interest is the appendix, which contains names of investigators whose own names were previously associated with anatomic structures. It is, of course, customary in modern science to discard these eponyms.

Light: The Raw Material of Vision. By Thomas Hall Shastid, A.M., M.D., LL.B. Cloth. Price, \$2. Pp. 64. Ann Arbor, Michigan: George Wahr, 1936.

This booklet is merely a sketch introductory to a much larger work on a similar subject which the author, an eye physician, expects to publish soon. He presents his thoughts and investigations and a few new definitions on what he is pleased to call "the raw material of vision," carrying his ideas on light through the nature and source, the vision factory, and the way it operates. In language almost simple enough for the public, he discusses the nature of light and its behavior. Interspersed are philosophic musings and at times quotations from various poets.

The Lung. By William Snow Miller. Cloth. Price, \$7.50. Pp. 209, with 152 illustrations. Springfield, Illinois & Baltimore: Charles C. Thomas, 1937.

In this book the author has collected more than 150 illustrations of the lungs, using most of the periodicals and textbooks available and including, as well, many from his own collection. The book is based on almost fifty years of study of the lung structure. The author uses the term "hilum" instead of "hilus." The book is magnificently produced; many of the illustrations are in colors. It includes a historical sketch, involving biographic notes of all the great investigators who specialized in a study of the lung. This is an invaluable reference work for all those who are concerned with knowledge of the lungs in any of its aspects.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Services: "Immediate Surgical Relief" Construed.—If an indemnity insurance policy contains a clause authorizing the insured to provide at the time of an accident, at the cost of the insurer, "such immediate surgical relief as is imperative," no hard and fast rule, said the Supreme Court of South Carolina, can be laid down by which to determine the extent of the surgical relief that is authorized. The nature of the injury and its severity must necessarily govern. The court thought that a proper construction of the clause was well expressed in *United States Casualty Company v. Johnston Drilling Company*, 161 Ark. 158, 255 S. W. 890, 34 A. L. R. 727, as follows: "Now, the words 'such immediate surgical relief as is imperative' as used in the contract of insurance obviously contemplates emergency or 'first-hand' relief, in other words, such relief as must be given instantly or immediately following the accident to prevent impending death or to assuage or prevent suffering. These words have no reference to such surgical and medical treatment and hospital charges and compensation for nurses and such other expenses as are incident to, and necessarily incurred in, the usual and ordinary treatment of the victim of the accident some time after the accident occurred and which are continued in order to restore him, if possible, to his normal condition, and by so doing to lessen the damages for which the person causing the injury would be liable."—*Dime Taxi Co. v. Central Mut. Ins. Co. of Chicago* (S. C.), 186 S. E. 391.

Optometry Practice Acts: Annual Registration Fee Used for Optometrical Research.—The petitioner was licensed to practice optometry in California. The legislature imposed an annual registration fee of \$12 on optometrists and provided that of this sum \$8 was to be paid to the University of California by the director of professional and vocational standards to be used solely for the advancement of optometrical research. The balance of the renewal fee, namely, \$4, was required to be paid into the state treasury by the director. When the annual renewal license fee for 1936 became due, the petitioner paid to the director of the department named the sum of \$4 and demanded that he be issued a renewal certificate for 1936. The director refused to do so and the petitioner applied to the district court of appeal, third district, California, for a writ of mandamus.

The petitioner contended that the exaction of \$8 for the support of the department of optometry of the University of California constituted an exercise of the taxing power rather than of the police power and that the exaction was unconstitutional because it denied to him due process and equal protection of the law and created an arbitrary discrimination between persons and classes of persons similarly situated. But, said the district court of appeal, the petitioner erred in referring to the science of optometry as the "business" of optometry, in contending that the license fee of \$12 was imposed as a tax for revenue purposes, and that such license fee, being imposed on a business, was limited to the amount necessary

for licensing, including reasonable compensation for supervision over the particular industry. The practice of optometry is more than a business, continued the court. It is a profession relating to the public health and, as such, is peculiarly subject to state control. That control is not exercised for the benefit of the licensee but for the protection of the state, and the legislature in the exercise of its police power may impose such proper restrictions as it deems necessary for the protection of the public. The right to practice a learned profession comes from the state and is subject to conditions imposed by the state and may be taken away for noncompliance with such conditions. One of the conditions imposed by the state on the right of a person to continue the practice of optometry in California is that he pay \$12 annually for the right so to do. He may either accept or reject the state's offer. If he rejects the offer, he may not be permitted to continue the practice. The disposition of the proceeds from the license fees collected from optometrists is a concern of the legislature and not of the members of the optometrical profession. The legislature, being vested with authority to determine the methods whereby optometry may be best regulated and the public interest protected, has concluded that such public interest may be best served by the maintenance and support of a department of optometry at the University of California, a branch of the state itself. This action is not subject to review by the courts. The petitioner's application for a writ of mandamus was therefore denied.—*Penington v. Bonelli (Calif.)*, 59 P. (2d) 448.

Dental Practice Acts: Revocation of License for Aiding Corporate Practice.—The California board of dental examiners revoked the license of the respondent, E. G. Masters, on the basis of a complaint charging (1) that he aided and abetted an unlicensed person to practice dentistry and (2) that he employed cappers and steersers to obtain business. The superior court, San Diego County, annulled the revocation order and the board appealed to the district court of appeal, fourth district, California.

The complaint, as a matter of pleading, was sufficient, said the appellate court. It alleged that the Western Health and Hospital Corporation, Ltd., was practicing dentistry by offering to perform, through its agents, operations or treatment of diseases or lesions of the human teeth, alveolar process and gums, for a fee; that the corporation engaged the respondent to perform such treatments and operations and that he therefore aided and abetted the corporation to practice dentistry. On proof of these facts, the court said, the board of dental examiners had jurisdiction to suspend and revoke the respondent's license. The dental practice act provides that a license may be revoked for aiding or abetting any unlicensed person to practice dentistry. A corporation cannot lawfully practice dentistry, nor may a corporation obtain a license to practice. If it does practice dentistry it is necessarily unlicensed practice. The word "person" includes a corporation as well as a natural person, and hence the term "unlicensed person" as used in the dental practice act includes a corporation which practices dentistry. It follows, said the court, that this accusation in the complaint against the respondent stated facts sufficient to constitute unprofessional conduct and grounds for suspending or revoking the respondent's license. The superior court, therefore, erred in annulling the judgment of the board based on this accusation.

The respondent was further charged with employing cappers or steersers to obtain business but, the court said, there was no evidence to sustain this charge. The record did not disclose that the respondent ever employed the Western Health and Hospital Corporation, Ltd., to obtain business for him. Two witnesses testified that a person at the office of the Western Health and Hospital Corporation, Ltd., gave them the name of the respondent as a dentist for the corporation along with the names of other dentists. This evidence was inadmissible as hearsay, said the court, and hearsay alone is not legally sufficient to support the accusation. The judgment of the superior court, therefore, that the evidence produced before the board of dental examiners was insufficient as a matter of law to prove this accusation was consequently affirmed.—*Masters v. Board of Dental Examiners of California (Calif.)*, 59 P. (2d) 827.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Association of Industrial Physicians and Surgeons, Detroit, May 6-7. Dr. Volney S. Cheney, Union Stock Yards, Chicago, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 5-8. Dr. E. Arthur Whitney, Elwyn, Pa., Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscorn, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Ghorumley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society for Clinical Thermometry, Atlantic City, N. J., May 3. Dr. J. M. Hayman Jr., ind. Secretary.
- American Society of Clinicians, June 2-6. Dr. A. S. Giordano, 531 North " " Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 4-5. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, Del Monte, May 2-6. Dr. F. C. Warnshuis, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- District of Columbia Medical Society of the Washington, May 5-6. Dr. C. B. Conklin, 1718 M St. N.W., Washington, Secretary.
- Georgia Medical Association of Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 4510 Sixth Avenue, Des Moines, Secretary.
- Kansas Medical Society, Topeka, May 3-6. Mr. Clarence G. Munns, Stormont Bldg., Topeka, Executive Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Relelah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Minnesota State Medical Association, St. Paul, May 3-5. Dr. E. A. Meyering, 11 West Summit Ave., St. Paul, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- Nebraska State Medical Association, Omaha, May 10-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- North Carolina Medical Society of the State of, Winston-Salem, May 3-5. Dr. L. B. McBrayer, Southern Pines, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelley, 20½ North Broadway, Fargo, Secretary.
- Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.

Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.
West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

29: 219-434 (Feb.) 1937

- Chemical Compounds as Carcinogenic Agents. J. W. Cook, G. A. D. Haslewood, C. L. Hewett, I. Hieger, E. L. Kennaway and W. V. Mayneord, London, England.—p. 219.
Carcinogenic Activity of Cholanthenes and of Other 1:2-Benzanthracene Derivatives. L. F. Fieser, Mary Fieser, E. B. Hershsberg, M. S. Newman, A. M. Seligman and M. J. Shear, Boston.—p. 260.
Studies in Carcinogenesis: IV. Development of Liver Tumors in Pure Strain Mice Following Injection of 2-Amino-5-Azotoluene. M. J. Shear, Boston.—p. 269.
Pure Strain of Malignant Mesenchymal Cells, Originating from Rat Sarcoma Produced by 1:2-Benzpyrene. L. Doljanski and L. Halberstaedter, Jerusalem, Palestine.—p. 285.
Medullary Carcinoma of Suprarenal Gland (Pheochromocytoma). M. J. Fein and F. F. Carman, Montclair, N. J.—p. 301.
*Iso-Agglutinins in Association with Malignant Growth. Anna Goldfeder and J. L. Fershing, New York.—p. 307.
Transplantation of Tumor Cells to Normal and Preirradiated Heterologous Organisms. J. Clemmesen, Aarhus, Denmark.—p. 313.
Chemistry of Cell Division: VI. Inhibition of Tumor and Liver Nuclease by Arsenicals. Mary E. Maver and C. Voegtlin, Washington, D. C.—p. 333.
Spectrographic Studies of Cancer and Normal Blood Plasma: III. Ultraviolet Absorption Spectrums of Fractionated Immune and Normal Rat Blood Plasma. Rachel G. Franklin, L. Smith and A. J. Allen, Philadelphia.—p. 341.
Experimental Serum Studies: Part II. Effect of Experimental Serum on Cell Respiration in Vitro of Sarcoma 180. Anna Goldfeder, New York.—p. 344.
Lack of Estrin Concentration in Adenofibroma of Mammary Gland in Rats. F. E. Mohs, Madison, Wis.—p. 356.
Influence of Wheat Germ Oil in Diet on Induction of Tumors in Mice. A. Haddow, London, England, and Helen Russell, Edinburgh, Scotland.—p. 363.

Iso-Agglutinins in Association with Malignant Growth.

—In view of the diversity of opinion, Goldfeder and Fershing made a study of 300 cancer cases in which the diagnosis was confirmed by histologic study after biopsy or necropsy. It differs from reports of previous investigators in that the percentage distribution of blood groups was studied not only in relation to the number of unclassified malignant manifestations but also in relation to anatomic location and to histologic type. All blood groups were represented among the 300 cancer cases. An analysis of the observations shows a marked difference in the distribution among the blood groups, of cancer of different sites. For instance, among the forty-four patients with malignant conditions of the breast, 43 per cent belong to group O, while among forty-one with malignant diseases of the cervix, only 26 per cent belong to group O. Among fifteen patients with cancer of the larynx, 46.7 per cent belong to group O, while none belong to group AB. Among eighteen cases of malignant disease of the mouth, 44 per cent fall in group O, 44 per cent in group A, 6 per cent in group B and 6 per cent in group AB. Of seventeen malignant disorders of the face, 47 per cent belong to group O, 35 per cent to group A, 18 per cent to group B and none to group AB. Among twenty malignant changes of the stomach, 55 per cent belong to group O, 25 per cent to group A, 20 per cent to group B, and none to group AB.

American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

3: 879-970 (Feb.) 1937

- *Effect of Administration of Aluminum Preparations on Secretory Activity and Gastric Acidity of Normal Stomach. A. C. Ivy, L. Terry, G. B. Fauley and W. B. Bradley, Chicago.—p. 879.
Lymphosarcoma of Stomach: Study of Four Cases. E. N. Collins and M. G. Carmody, Cleveland.—p. 884.
Intravenous Galactose Liver Function Test. I. R. Jankelson, M. Segal and M. Aisner, Boston.—p. 889.
Gastro-Intestinal Symptoms of Pelvic Origin. H. Gauss, Denver.—p. 891.
Composition of Human Gastric Juice Secreted in Response to Histamine Administration. C. Gwendoline Toby, Montreal.—p. 896.
Does Histamine Stimulate Secretory Activity of Peptic Cells in Man? C. Gwendoline Toby, Montreal.—p. 902.
Gastro-Intestinal Studies: VI. Volume of Gastric Juice in Pernicious Anemia. P. J. Fouts, O. M. Helmer and L. G. Zervas, Indianapolis.—p. 904.
Studies on Chemical Nature of Interaction Between Intrinsic and Extrinsic Antianemic Factors on Incubation of Liver Extract and Normal Gastric Juice. O. M. Helmer and C. P. Emerson Jr., Indianapolis.—p. 906.
Protamine Insulin in Treatment of Diabetes. H. G. Jacobi, New York.—p. 908.
Present Evaluation of Vitamin B₁ Therapy. M. G. Vorhaus, New York.—p. 915.
Large Diverticula of Gastric Cardia. G. Cheney and R. R. Newell, San Francisco.—p. 920.
Volvulus of Inverted Intrathoracic Stomach Complicating Diaphragmatic Hernia: Case Report. A. Bowen, Los Angeles.—p. 923.
Chaulmoogra Oil in Treatment of Lymphopathia Venerea. G. M. Landrock, Philadelphia.—p. 928.
Lymphogranuloma Inguinale: Rectal Stricture and Prestricture. M. G. Spiessman, R. C. Levy and D. M. Brotman, Chicago.—p. 931.
Hemorrhoids: Their Origin and Treatment. J. M. Lynch, V. Hurley and G. J. Hamilton, New York.—p. 936.
Significance of Icterus Index in Proctologic Disorders. J. Gerendasy, Elizabeth, N. J., and R. V. Gorsch, New York.—p. 940.
- Aluminum Preparations and Secretory and Gastric Acidity of Normal Stomach.**—Ivy and his associates determined the normal gastric response of six graduate students, accustomed to the stomach tube, to 50 cc. of 7 per cent alcohol, after evacuating the gastric residuum. The alcohol test was performed with aluminum preparations immediately after taking the alcohol. The curves of the average response of the group for two hours shows that the aluminum preparation reduced the free acidity for forty-five minutes or longer. The variation in the response from subject to subject was rather marked, and the tendency to an increase in acidity after the aluminum had been evacuated was characteristic of four of the six subjects.

American Journal of Medical Sciences, Philadelphia

193: 297-448 (March) 1937

- Passage of Fluid Through Capillary Wall. E. M. Landis, Philadelphia.—p. 297.
Observations on Blood Regeneration in Man: I. Rise in Erythrocytes in Patients with Hematemesis or Melena from Peptic Ulcer. E. Schjodt, Copenhagen, Denmark.—p. 313.
Id.: II. Influence of Sex, Age, Form of Hemorrhage, Treatment and Complications on Erythrocyte Regeneration After Hematemesis and Melena from Peptic Ulcer. E. Schjodt, Copenhagen, Denmark.—p. 327.
Interrelation of Various Systemic Hematopoietic Processes. T. R. Waugh, Montreal.—p. 337.
Physiologic and Symptomatic Expectancy Following Subtotal Gastrectomy. E. A. Gorvett and E. S. Talbot, Chicago.—p. 345.
*Tolerance of Certain Cardiac Patients for Various Recumbent Positions (Trepopnea). F. C. Wood and C. C. Wolferth, Philadelphia.—p. 354.
Organic Background of Some Cases of Spasmodic Torticollis: Report of Case with Autopsy. B. J. Alpers and C. S. Drayer, Philadelphia.—p. 378.
Pituitrin Injections and Blood Picture in Normal and Hypophysectomized Guinea-Pig. W. D. McFarlane and M. K. McPhail, Edmonton, Alta.—p. 385.
Recurrence in Mixed Tumors of Soft Palate. J. E. Rhoads and P. M. McCray Jr., Philadelphia.—p. 389.
*Carbaminoylcholine (Doryl or Lentin): Its Action on Normal Persons, in Peripheral Vascular Disease and in Certain Other Clinical Conditions. I. Starr, Philadelphia.—p. 393.
Use of Acetyl-β-Methylcholine Chloride by Iontophoresis in Peripheral Vascular Diseases. D. W. Kramer, Philadelphia.—p. 405.
Urinary Excretion of Arsenic: I. Normal Subjects. Marjorie R. Mattice and D. Weisman, New York.—p. 413.
Id.: II. Influence of Thiosulfate. Marjorie R. Mattice and D. Weisman, New York.—p. 420.
Present Status of Prevention and Treatment of Influenza. H. Pettit and J. Stokes Jr., Philadelphia.—p. 423.

Tolerance of Cardiac Patients for Certain Recumbent Positions.—Wood and Wolferth use the term trepopnea for the phenomenon observed in certain cardiac patients who can lie comfortably in one recumbent position, usually the right

lateral, but cannot tolerate another recumbent position, usually the left lateral, and are forced to abandon the latter for the former by symptoms that they cannot endure. This phenomenon is just as common and just as definite as orthopnea. There are certain indications that trepopnea and orthopnea are related and that they may be manifestations of the same type of underlying mechanism. Patients group themselves into four general categories: (1) those who can lie comfortably in any recumbent position, (2) those who prefer one position or object to another for relatively minor reasons, (3) those who experience dyspnea and discomfort in the chest when in the unfavorable position but who can endure it and (4) those who are actually forced to abandon one recumbent position for another by symptoms that they cannot endure. The last two groups constitute the material on which the authors' discussion is based. The symptoms that forced patients to change from one horizontal position to another were usually dyspnea and discomfort in the region of the heart. Less common manifestations that compelled them to move were coughing and anginal pain. Most of these patients showed considerable cardiac enlargement and a marked reduction of the functional capacity of the heart. No regularly occurring cardiovascular characteristics have been observed by which these patients with position preference can be differentiated from those with orthopnea, but in most engorgement of the veins and liver was more prominent than engorgement of the lungs. When a patient moved from a favorable to an unfavorable position there was usually a latent period before the appearance of symptoms. This period varied from ten seconds to two minutes (average about twenty seconds). The respiratory phenomena were variable. Certain patients showed a rapid rise of their respiratory rate to double the original and an apparent lessening in depth. Others showed a change of facial expression from one of relaxation and comfort to one of anxiety and apprehension and complained bitterly of dyspnea but did not increase their respiratory rate, and their breathing was not deepened. If these observations are supported by careful measurement of minute volume, they indicate that the dyspnea which is the principal complaint of these patients is a subjective sensation, which may or may not be accompanied by obvious change in the rate or depth of breathing. On fluoroscopic study, forty-nine subjects fell into three groups: fourteen with no demonstrable heart disease and no trepopnea, fifteen with heart disease without definite trepopnea, and twenty with heart disease and real trepopnea. In a few instances, systolic murmurs seemed to become louder after the patient had maintained the left lateral (unfavorable) position for a few minutes. The conclusion seems justified that this phenomenon cannot be accounted for by vital capacity changes or by variations in relative levels of the right auricle and the respiratory center. The authors believe that trepopnea is due to movement of the heart in the thorax as the patient changes position and that this movement causes pressure on certain mediastinal structures, which gives rise to the signs and symptoms. Patients in whom this phenomenon is marked do not assume their most unfavorable position at night, even when asleep. Those in whom it is less well developed are sometimes found in an unfavorable recumbent position during sleep, although they may assert that they cannot tolerate this position.

Action of Carbinoylcholine in Peripheral Vascular Disease.—Starr first administered carbinoylcholine chloride in increasing dosage to twenty-six normal young adult volunteers (from 0.1 to 1 mg. subcutaneously and from 0.4 to 1 mg. orally). With this experience behind him he employed it in the treatment of disease conditions which its action seemed adapted to benefit. The drug causes striking relief of pain in certain cases of peripheral vascular disease without any increase in skin temperature of the affected part. This raises the question whether the relief secured is due to something else than vasodilatation. In the author's opinion the skin temperature method of estimating peripheral blood flow is too crude to permit one to place much emphasis on a negative result. He attributes the relief of pain to vasodilatation of a grade too slight, or in vessels too deep, to be detected by this method. The information now at hand concerning its dosage, action and untoward effects is sufficient to warrant its cautious use in cases in which its action seems adapted to be beneficial.

American Journal of Ophthalmology, St. Louis

20: 237-346 (March) 1937

- Sudden Occlusion of Retinal Arteries: Correlated Fundus Photographs and Fields in Branch Closures. A. J. Bedell, Albany, N. Y.—p. 237.
- Lectures on Cataract: III. Anterior Segment and Other Complications in Postoperative Period. R. E. Wright, Madras, India.—p. 240.
- *Ocular Lesions Associated with Postoperative and Gestational Nutritional Deficiency. H. P. Wagoner and J. F. Weir, Rochester, Minn.—p. 253.
- Gradient of Retinal Illumination and Its Practical Significance. E. J. Ludvigh, Boston.—p. 260.
- Surgical Results in 223 Cases of Heterotropia; Especial Reference to Orthoptic Training. C. Berens, New York.—p. 266.
- Essential Progressive Iris Atrophy: Case of Bilateral Occurrence. M. Fine and H. Barkan, San Francisco.—p. 277.
- Thin Lenses and Bifocals for High Myopia. S. L. Olsho, Philadelphia.—p. 281.
- Requirements of Good Desk Lighting. C. E. Ferree and G. Rand, Baltimore.—p. 286.
- Enucleation with Implantation of Foreign Substances into Tenon's Capsule: Technic in Which No Sutures Are Buried. C. Berens, New York.—p. 293.
- New Diathermy Point for Retinal Detachment. A. C. Unsworth, Hartford, Conn., and K. F. Larkin, New York.—p. 296.

Ocular Lesions Associated with Nutritional Deficiency.

—Wagoner and Weir point out that the occurrence of hemeralopia and xerophthalmia among persons whose diet is deficient in vitamin A has been well established. That deficiencies of other vitamins can cause lesions of the eye has not been so clearly demonstrated, although a number of clinical and a few experimental reports can be found in the literature. It seems probable that, in the average case, inadequate amounts of several rather than of single vitamins are concerned in the production of the deficiency syndrome. Deficiency of vitamins in the organism may be produced by inadequate amounts in the diets, by deficient absorption from the intestinal tract or by increased consumption during rapid growth or during a severe disease. In at least two of the postoperative cases presented by the authors, prolonged vomiting was apparently the basis for the nutritional deficiency. The administration of vitamins caused the absorption of hemorrhages in the retina in their second case of pernicious vomiting of pregnancy before the interruption of the pregnancy. The hemorrhages in Stander's case, present three weeks after the induced abortion, suggest the influence of nutritional deficiency in the causation of the retinal hemorrhages. It seems probable that acute optic neuritis, hemorrhages in the retina, paralyzes of ocular muscles and nystagmus may be caused by dietary or nutritional deficiencies. These deficiencies may develop rather rapidly, especially in the presence of persistent vomiting and the resultant lack of absorption of food.

American Journal of Psychiatry, New York

93: 757-1008 (Jan.) 1937

- Pathologic Changes in Senile Psychoses and Their Psychobiologic Significance. D. Rothschild, Foxborough, Mass.; with technical assistance of M. A. Trainor.—p. 757.
- General Semantics: Implications of Linguistic Revision for Theoretical and Clinical Neuropsychiatry. D. G. Campbell, Chicago.—p. 789.
- Nursing Schools in Psychiatric Hospitals: Report of Survey. Harriet Bailey.—p. 809.
- *New Treatment of Schizophrenia. M. Sakel, Vienna, Austria.—p. 829.
- Chorea Gravidarum: Study of Psychogenic Factors Therein, with Report of Case. W. C. Weigner, Providence, R. I.—p. 843.
- Speech as Emergent Specificity. J. H. Muyskens, Ann Arbor, Mich.—p. 857.
- Mental Reactions of Normal Children to Physical Illness. W. W. Barraclough, Toronto.—p. 865.
- Importance of New Developments in Machine Operations. J. S. Plant, Newark, N. J.—p. 879.
- Psychogenic Factors in Overt Homosexuality. G. W. Henry, New York.—p. 889.
- Psychologic Aspects of Physiotherapy. W. C. Menninger and Mildred Cutrer, Topeka, Kan.—p. 909.
- Observations on Circulating Blood Volume in Schizophrenia, Manic-Depressive Psychosis, Epilepsy, Involutional Psychosis and Mental Deficiency. I. Finkelman, Chicago, and D. Haffron, Elgin, Ill.—p. 917.
- Brain Potentials from Normal Subjects, Stutterers and Schizophrenic Patients. L. E. Travis and W. Malamud, Iowa City.—p. 929.
- Automatic Control of Continuous Bath. W. E. Lang, Westborough, Mass.—p. 937.
- Study of Alcoholism in Women. J. H. Wall, White Plains, N. Y.—p. 943.
- Therapy in Catatonia: Effects of Combining Caffeine Sodibenzoate with Sodium Amytal. S. B. Broder, Chicago.—p. 957.

Sakel's Treatment of Schizophrenia.—Sakel's treatment of schizophrenia consists essentially of the production of consecutive daily shocks with high doses of insulin; these occasion-

ally provoke epileptic seizures but more frequently produce somnolence or coma, accompanied by profuse perspiration—in any case a clinical picture that would ordinarily be alarming. The patient may show sudden improvement after the first shock, but more often there is a gradual improvement after a series of shocks. In this phase of treatment, however, the response is still fluctuating and unstable, so that further treatment is necessary to stabilize the remission. The method of treatment may be dangerous in unskilled hands. When it is considered that the patients who come for treatment are generally looked on as lost or very seriously ill in any case, there is good justification for attempting a therapy, however dangerous, which gives some promise of success. The experience that the author has had up to now is promising.

American Journal of Surgery, New York

35: 467-670 (March) 1937

- Osteogenic Tumors of Scapula. B. L. Coley, New York.—p. 471.
Simplicity in Treatment of Fractures of Upper End of Humerus. E. L. Eliason and J. Johnson, Philadelphia.—p. 478.
*Weak Foot: Pathogenesis and Treatment. J. Graham, Springfield, Ill.—p. 486.
Chronic Hyperthyroidism. T. C. Davison, Atlanta, Ga.—p. 509.
*Simple Mastectomy in Cancer of Breast. E. J. Grace, Brooklyn.—p. 512.
Differential Diagnosis of Benign and Malignant Small Lesions of Stomach: Attempt to Evaluate Statistically Various Symptoms and Laboratory Findings. M. W. Comfort and W. L. Butsch, Rochester, Minn.—p. 515.
Acute Perforations of Stomach and Duodenum: Study of Thirty-Six Cases. C. W. Woodall, Schenectady, N. Y.—p. 524.
Surgical Lesions of Stomach: Immediate and Late Results in 100 Consecutive Cases. C. B. Rentschler, Reading, Pa.—p. 529.
Acute Intestinal Obstruction. J. L. DeCoursey, Cincinnati.—p. 532.
Clinical Aspects of Mesenteric Adenitis. V. L. Schragger, Chicago.—p. 539.
Treatment of Pruritus Ani by Injection. W. Lieberman, Brooklyn.—p. 546.
Nomenclature in Plastic Surgery. E. M. Finesilver, Newark, N. J.—p. 549.
*Therapeutics of Maggot Active Principle: Clinical Application in 1,020 Cases. S. K. Livingston, Hines, Ill.—p. 554.

Weak Foot.—Success in the treatment of the common type of weak foot due to poor posture depends on the intelligent employment by the physician and the patient of five separate but simultaneous lines of attack: maintenance of correct posture, proper use of the foot in walking, exercises for the reeducation of the foot and leg muscles, properly constructed shoes that fit correctly, and a temporary crutch in the form of an arch support. Graham has in mind the uncomplicated weak foot. In the treatment of the complicated weak foot there is a basic attack directed always toward the primary distortion of physiology, maladaptation of the weight bearing mechanism to the superstructure, and a secondary attack varying in nature with the complication. No matter whether the clinical condition present in a given case is simple weak foot or complicated weak foot, the basic attack is the same, regardless of variations that must be made in the secondary attack. The common type of weak foot is that associated with poor body posture. The sequence of events appears to be slouch posture with a forward shift of the line of gravity of the body, lumbar lordosis, increased pelvic tilt, internal femoral rotation, internal astragalar rotation, and valgus relation. Absolute cooperation of the patient is essential, since the plan of treatment has as its goal the development in the individual of a consciousness of posture that is followed eventually by a posture reflex. This necessitates first of all the instruction of the patient in the elements of correct posture. The "wall and chair maneuvers" are described in this connection. Development of neglected muscles through exercises enables the patient to pull himself into correct posture and to stay there. This act in time becomes reflex. The foot cannot function efficiently when the shoe covering it is not properly constructed and correctly sized. Patients for postural correction must be selected with care, since readjustment of a posture that has been maintained for years is a serious matter.

Simple Mastectomy in Cancer of Breast.—An evaluation of the results of radical surgery, when studied comparatively with a corresponding group of cases with simple mastectomy and radiation, leaves Grace convinced that the rôle of surgical radicalism is far removed from surgical idealism. A series of forty simple mastectomies with irradiation, after a five year

follow up, is compared with other larger series of radical mastectomies. The latter groups represent a total of 1,276 radical mastectomies. There was a marked similarity in the end results, whether radical or simple mastectomy is done. The cellular structure of the tumor is the dominant factor, and surgical technic, irrespective of the extent of its radicalism, plays a definitely secondary part.

Therapeutics of Maggot Active Principle.—Livingston points out that 415 cases have been treated by living maggots and maggot active principle in combination, and 605 cases by maggot extract alone. Living maggots have been used only in large suppurative, copiously discharging wounds because of the mechanical difficulty of introducing a fluid into such a wound. When the exudate decreased, the maggot active principle was substituted for the living larvae and used either as a drip or as a wet pack. The wounds, when stimulated by maggot active principle following a débridement or a radical sequestrectomy, quickly filled with pink healthy granulation tissue; granulations sprang from the depths of the medullary cavity and from the walls of the wound, completely filling the cavities to the level of the skin. Epithelization completed the process without a depressed scar. The period of healing was from six to twenty weeks. The extract is stable at room temperature and was found to be still active when tested after six months on the shelf. The psychic trauma of living maggots is eliminated. It is a more powerful growth stimulant than any one of its ingredients, which were used alone as a control. The extract has a wider applicability than living maggots. Maggot extract was successful in only 5 per cent of the cases of tuberculous origin; there was failure to respond satisfactorily in 12 per cent of the cases of chronic pyogenic osteomyelitis having a large involucrum incorporating multiple foci of infection, cases of chronic pyogenic osteomyelitis undergoing molecular necrosis or cases having positive blood cultures.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

21: 121-240 (March) 1937

- Research Needs in Control of Syphilis. A. M. Chesney, Baltimore.—p. 121.
To What Extent Can a Bacteriologist Contribute to Control of Venereal Diseases? H. Zinsser, Boston.—p. 132.
Comparative Study of McNeil and Witebsky Antigens Used in Serodiagnosis of Gonorrhea. A. Hollander, New York.—p. 140.
*Hyperpyrexia in Treatment of Keratoderma Blennorrhagicum. E. Epstein, Los Angeles.—p. 148.
Optimal Treatment for Early Syphilis, Based on Twenty Year Trial of Arsphenamine, Bismuth and Mercury Preparations. A. B. Cannon, New York.—p. 155.
Microscopic Pathologic Appearance of Aorta in Treated and Untreated Patients with Syphilitic Aortitis. B. J. Hood and C. F. Mohr, Baltimore.—p. 177.
Oral Administration of Stovarsol in Treatment of Experimental Syphilis of Rabbit. P. D. Rosahn and J. E. Kemp, Chicago.—p. 180.

Hyperpyrexia in Treatment of Blennorrhagic Keratoderma.—Epstein obtained a successful result in a case of blennorrhagic keratoderma by inducing hyperpyrexia artificially. The method employed to raise the temperature was a slight modification of that described by Norman Epstein and Cohen in 1935. An oral temperature higher than 106.5 F., a pulse rate more rapid than 160 beats per minute or a respiratory rate in excess of 40 per minute is considered to be at a dangerous level. When the oral temperature reaches 103.5 F., the heat cradle is removed and the rubber sheet and the large blanket are then wrapped directly around the patient. A hypodermic injection of one-third grain (0.02 Gm.) of the hydrochlorides of the alkaloids of opium, principally morphine, is given when the cradle is removed in order to control restlessness. Fluids are administered orally during the treatment, 200 cc. of warm lemonade (100 F.) being given after each recording of the pulse, temperature and respiratory rate. The lemonade is sweetened to taste and 0.6 per cent sodium chloride is added to aid in replacing the chlorides lost through perspiration. When the patient has spent four hours at a temperature in excess of 103.5 F., the blankets are removed and the patient is given an alcohol sponge bath. Treatments are usually repeated every other day. The oral administration of cod liver oil was the only other therapeutic agent employed in the treatment of the patient. Prompt relief from gonorrheal urethritis, arthritis and keratoderma were obtained.

American Review of Tuberculosis, New York

35: 281-410 (March) 1937

- Further Studies on Purified Protein Derivative of Tuberculin (P. P. D.): Its Diagnostic Value and Keeping Qualities in Dilutions. E. R. Long and Florence B. Seibert, Philadelphia.—p. 281.
- Comparative Study of Old Tuberculin and Purified Protein Derivative. R. E. Plunkett and W. Siegal, Albany, N. Y.—p. 296.
- *Treatment of the Child with the Adult Type of Active Pulmonary Tuberculosis: Plea for Compression Therapy. M. Gross and S. B. English, Glen Gardner, N. J.—p. 303.
- Tuberculous Pneumonia and Diabetes Mellitus: Report of Case Treated with Artificial Pneumothorax and Insulin with Marked Improvement. H. C. Shephardson and C. A. Noble Jr., San Francisco.—p. 323.
- *Tuberculosis and Malignant Tumors. R. M. Moore, Columbia, Mo., and H. C. Schmeisser, Memphis, Tenn.—p. 336.
- Home versus Preventorium in the Management of Tuberculosis Contracts. L. J. Moorman, Oklahoma City.—p. 347.
- Dissociation of Tubercle Bacilli. W. H. Oatway Jr., Madison, Wis., and W. Steenken Jr., Trudeau, N. Y.—p. 354.
- Dissociation of an Old Homogenized Culture of Human Tubercle Bacillus. R. C. Rosenberger, Philadelphia.—p. 365.
- Destruction of Certain Constituents of Tubercle Bacillus by Bacterial Enzymes. F. J. Wallace and H. A. Bray, Ray Brook, N. Y.—p. 370.
- Biologic Antagonism Between Smeigma Bacilli and Tubercle Bacilli. H. Sewall and E. C. de Savitsch, Denver.—p. 375.

Treatment of the Child with Adult Type of Active Pulmonary Tuberculosis.—Gross and English have treated forty-nine cases of the adult destructive type of disease in the juvenile by some form of compression therapy for a period of from six months to five years. Their ages have been from 5½ to 15 years. Whenever artificial pneumothorax could be given, the results were far superior to those of any other type of compression therapy. Twenty-four patients received unilateral collapse with two deaths. Both fatalities occurred in the first month, being far advanced, hopeless cases. Twelve patients received unilateral compression which required an additional phrenic crushing to help close the cavernous processes because of interfering adhesions. In this group there were four deaths, three of the patients dying after two years of unsuccessful collapse of the disease process and one patient one year after collapse was started. The last fatality had in addition an intrapleural pneumolysis followed by a putrid empyema. Five patients received bilateral artificial pneumothorax, with two fatalities. No free pleural space could be found in four patients and therefore phrenicophax was performed. In two cases the cavities are practically closed and in two others no improvement is noticeable. In four other cases, phrenic crushing was performed because it was deemed inadvisable to give artificial pneumothorax, owing to the far advanced, hopeless condition of the patients. Two are dead, one having died six months following entrance and the other eighteen months after admission in another institution. The third patient is in poor physical condition and has been at home for the last three and one-half years. The fourth patient has been in another institution for the last three years, ambulant but having active tuberculosis. In all the fatal cases there were persistent, positive sputum, marked pulmonary involvement and cavernous processes, making it impossible to get the disease under control from the very start. They were all progressive cases. The adult disease in juvenile cases is practically of the same type as that seen in adults with the exception of some peculiar, unexplained reason that the children do not seem to handle the disease as well. The procedure of choice is artificial pneumothorax. The authors' best results have been obtained in cases in which a free pleural space could be found and this procedure applied and adequate collapse obtained. The aim of those doing compression therapy, especially artificial pneumothorax, should be an optimal compression, conducive to successful collapse of the diseased lung. One should not hesitate to do bilateral artificial pneumothorax if indicated. These patients are generally in need of such procedures, and the outlook without compression is doubtful. Children having positive sputum should be separated from those having negative sputum, as cross infection can and does occur.

Tuberculosis and Malignant Tumors.—Moore and Schmeisser studied the incidence and relation of tuberculosis and malignant tumors in the same individual as seen from the protocols of 2,000 consecutive necropsies. Without regard to race, sex or age the 2,000 cases were divisible into three general incidence groups: 131 cases of malignant tumor, 480 of tuberculosis and 1,410 cases showing no evidence of tuberculosis or a malignant tumor. Therefore it will be seen that the total

number of cases in which both tuberculosis and a malignant tumor existed numbered only twenty-one. If a comparison is made between this double-lesion group and the total number of cases in each of the two disease groups, it is found that 4.37 per cent of all people with tuberculosis also have a malignant tumor, while 16.03 per cent of all people with a malignant tumor also have tuberculosis. Therefore, while the incidence of the double-lesion group as compared to the total number of necropsies is relatively low, the incidence assumes greater importance when compared with the two disease groups in question.

Anatomical Record, Philadelphia

67: 271-398 (Feb. 25) 1937

- Meningeal Relations of Hypophysis Cerebri: I. Relations in Adult Mammals. G. B. Wislocki, Boston.—p. 273.
- Nature of So-Called Droplets Found Between Rod Outer Segments of Vertebrate Eyes. S. R. Detwiler and R. L. Zwemer, New York.—p. 295.
- Vaginal Smear Picture, Sexual Receptivity and Time of Ovulation in Guinea-Pig. W. C. Young, Providence, R. I.—p. 303.
- Experimental Studies on Spermatogenesis in House Sparrow, *Passer Domesticus* (Linnaeus). G. M. Riley, Iowa City.—p. 327.
- Homeotransplantation of Guinea-Pig and Rabbit Adrenal Grown in Vitro. Lydia Lux, G. M. Higgins and F. C. Mann, Rochester, Minn.—p. 353.
- Thyroid Gland of Normal Rat: Size, Dry Matter and Iodine Content. R. E. Remington, J. W. Remington and Sarah S. Welch, Charleston, S. C.—p. 367.
- Study of Vascularity of Pituitary Body in Cat. Helen M. Stevens, Toronto.—p. 377.

Annals of Surgery, Philadelphia

105: 321-480 (March) 1937

- Status of Injection Treatment of Hernia. O. H. Wangenstein, Minneapolis.—p. 322.
- Ambulant Treatment of Hernia. A. F. Bratrud, Minneapolis.—p. 324.
- Evaluation of Results of Injection Treatment of Inguinal Hernia: Review of Employment of Method at the University of Minnesota Hospital. F. S. McKinney, Minneapolis.—p. 338.
- Injection Treatment of Hernia: Evaluation of Technic and Results. C. O. Rice, Minneapolis.—p. 343.
- *Sterility Following Injection Treatment of Hernia: Determination of Its Incidence. C. E. Rea, Minneapolis.—p. 351.
- *Value of Partial Pancreatectomy in Convulsive States Associated with Hypoglycemia. J. M. McCaughan and G. O. Broun, St. Louis.—p. 354.
- Thyroid Gland in Hypoglycemia. N. A. Womack and W. H. Cole, St. Louis.—p. 370.
- Variations of Blood Amylase During Acute Transient Disease of Pancreas. R. Elman, St. Louis.—p. 379.
- *Value of Preoperative Irradiation in Tumor of Testis. A. Randall and A. E. Bothe, Philadelphia.—p. 385.
- Shock Syndrome Following Subcutaneous Injection of Bile or Bile Salts. E. Andrews, H. N. Harkins, P. H. Harmon and Jeanne Hudson, Chicago.—p. 392.
- Spinal Extradural Cysts. R. B. Cloward, Chicago.—p. 401.
- Sacrococegeal Teratoma. J. A. deVeer and J. Browder, Brooklyn.—p. 408.
- Cancer of Tongue: Report of 187 Cases, with Analysis of Ninety-Eight Treated Principally by Surgery at the New York Skin and Cancer Hospital Between 1917 and 1935. A. S. Morrow, New York.—p. 418.
- Care and Cure of Cancer Patients. B. R. Shore, New York.—p. 442.
- Subastragalar Arthrodesis in Paralytic Deformities. W. R. MacAusland, Boston.—p. 452.

Sterility Following Injection Treatment of Hernia.—To study the possible sterility in cases of bilateral inguinal hernia treated by the injection method, Rea performed ejaculation tests. If this was unsuccessful, prostatic smears were examined for spermatozoa. In fifteen cases in which ejaculation tests were performed after treatment, all were normal. Ejaculation tests were obtained before and after treatment in two cases; one of the patients had had an operative repair on one side. In eight patients from whom prostatic smears were obtained, no spermatozoa were found. Three of these patients had a chronic prostatitis. Two patients, both of whom showed abnormal mental traits, complained of less libido three months and five years, respectively, after hernial injections. Of seventy-five cases of unilateral inguinal hernia, followed up to two years, only one patient complained of less libido after a course of sclerosing injections. As to impotence following injections, the type of patient is probably the most important factor. Sterility therefore does not appear to be a complication of the injection treatment of hernia. Fear of such an occurrence should not deter employment of this method in selected cases of inguinal hernia.

Partial Pancreatectomy in Convulsive States Associated with Hypoglycemia.—McCaughan and Broun advise that desperate cases of convulsive seizures associated with

hypoglycemia unrelieved by proper dietary and medical treatment be offered the opportunity afforded by surgical exploration. Adenomas if present may be removed, with excellent prospects for cure. If no tumors are found, the pancreas can be partially extirpated without undue risk. The amount to be removed will depend on the severity of the symptoms and the anatomic and pathologic conditions at hand. If the pathologic changes in the resected portion show islet hypertrophy or small adenomas, a case improved by resection can be offered the benefit of additional resection if conditions are favorable for further operative procedure. From a study of case reports in the literature it is evident that the end results of operations in cases with islet cell tumors are excellent, and in cases without adenomas the results, while much less satisfactory, are occasionally gratifying. The authors' results in their series were very disappointing and should dampen the enthusiasm of those who may be inclined to recommend surgery for the relief of any and all cases of hypoglycemia with nervous manifestations. Until a positive method for differentiating cases of pancreatic adenomas from other functional abnormalities of the islet cells, particularly those due to an imbalance between inter-related endocrines, is developed subtotal resections of the pancreas will continue to be unfavorable. The comparison of subtotal pancreatectomy for hyperinsulinism with the rationale of thyroidectomy for hyperthyroidism, as has been suggested by some, seems scarcely tenable in view of the uncertain and the generally unsatisfactory clinical results thus far reported in cases without adenomas of islet cell origin.

Preoperative Irradiation in Tumor of Testis.—Randall and Bothe feel that irradiation should precede surgery in tumors of the testicles but that it should never supplant it entirely. Irradiation of testicular tumors has a definite destructive effect on the immature embryonal cells but little or no effect on the differentiated types. These observations are in keeping with the laws governing cellular radiosensitivity. Regardless of the degree of clinical improvement, irradiation does not entirely destroy the neoplasm. In that class in which there are occasional viable cells remaining which appear to have the power of regeneration, it is felt that these tumors should be removed surgically, after the maximal regression from irradiation has been obtained. Procrastination after effective irradiation leads to disaster. The most favorable time for removal is usually between the fifth and the sixth week. Orchidectomy alone has given less than 10 per cent of cures; radical surgery by orchidectomy, with the removal of the entire lymph drainage area, has raised this figure to 19 per cent, and irradiation alone has produced 29 per cent of cures. Irradiation alone cannot be relied on to produce a cure because of resistant cells; nor can a cure be appreciated, measured or established by any clinical test. Therefore, orchidectomy is mandatory as a secondary procedure. Irradiation should be widespread in its application and should include the entire body above the primary lesion.

Archives of Internal Medicine, Chicago

59: 367-560 (March) 1937

- Intake of Potassium, an Important Consideration in Addison's Disease: Metabolic Study. R. M. Wilder, E. C. Kendall, A. M. Snell, E. J. Kepler, E. H. Rynearson and Mildred Adams, Rochester, Minn.—p. 367.
- Endemic Pneumonia: Pneumococcal Types and Their Variations in Incidence and Mortality for Adults and Children. J. G. M. Bullowa and C. Wilcox, New York.—p. 394.
- Pulmonary Capacity in Lobar Pneumonia, with Especial Reference to Collapse Therapy. N. L. Kaltreider, H. Van Zile Hyde and W. W. Fray, Rochester, N. Y.—p. 408.
- *Renal Insufficiency from Blood Transfusion: I. Relation to Urinary Acidity. E. L. DeGowin, Iowa City; H. F. Osterhagen, Detroit, and Marie Andersch, Philadelphia.—p. 432.
- Changing Incidence of Tuberculosis of Tonsils. M. Catherine Magee, Ann Arbor, Mich.—p. 445.
- Chest Leads in Electrocardiography. C. L. C. Van Nieuwenhuizen and H. A. P. Hartog, Utrecht, Netherlands.—p. 448.
- Anatomic Features of Cardiac Orifice of Stomach, with Especial Reference to Cardiospasm. F. C. Lendrum, Detroit.—p. 474.
- Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions. R. M. Wilder and D. L. Wilbur, Rochester, Minn.—p. 512.

Renal Insufficiency from Blood Transfusion.—The interest of DeGowin and his associates in renal insufficiency following transfusion was stimulated by the occurrence in the University Hospital of two fatal cases of renal insufficiency

following blood transfusion. As clinical experience and a review of the literature pointed to no promising therapeutic procedures in this condition, they attacked the problem experimentally. So far they have made studies on a series of twenty-eight dogs over a period of more than two years. More than 100 transfusions of dog hemoglobin have been given. It was found that when the urine is alkaline the intravenous injection of a large amount of dog hemoglobin into dogs seems to be innocuous. Under such conditions four dogs received a total of thirty-eight transfusions without harm. In one of the dogs, retention of nitrogen developed on three occasions when the transfusion was given while the urine was acid. When the urine is acid, transfusions of hemoglobin sooner or later produce renal insufficiency. Seven dogs died in coma from four to ten days after the transfusion, with the urea nitrogen values of the blood ranging between 120 and 362.6 mg. per hundred cubic centimeters and creatinine values between 4.6 and 15 mg. One dog was killed when recovering, the urea nitrogen content of the blood being 95 mg. Only one dog survived seven transfusions when on an acid diet. This syndrome, clinically and chemically, closely simulates that which develops in human beings with renal insufficiency resulting from hemoglobinuria. The cause of renal insufficiency resulting from hemoglobinuria in dogs appears to be the obstruction of the tubular lumens with masses of pigment derived from hemoglobin. These studies substantially confirm the experiments performed on rabbits by Baker and Dodds.

California and Western Medicine, San Francisco

46: 145-216 (March) 1937

- Protamine Insulin: Some Clinical Studies: Calcium and Zinc Preparations with Insulin. B. Smith and W. H. Grishaw, Los Angeles.—p. 157.
- Cardiospasm. H. B. Stephens, San Francisco.—p. 161.
- Pancreatic Surgery. G. Thomason, Los Angeles.—p. 164.
- Surgical Treatment of Stomach Ulcer. C. E. Phillips, Los Angeles.—p. 169.
- *Osteomyelitis and Suppurative Joints: Salt Water Pool Treatment. A. Brockway, Los Angeles.—p. 174.

Osteomyelitis and Suppurative Joints.—Brockway does not believe that restoration of motion in a pus-ridden joint is aided by a long period of immobilization. It is in support of this contention that he describes the salt water pool treatment of bone and joint infections. While he has used this treatment in more than 100 cases of osteomyelitis, his discussion is concerned only with thirty cases of suppurative arthritis and osteomyelitis in which adjacent joints are also involved or when the disease process closely encroaches on joint structures. It is in these particular types of cases, in which preservation of joint motion is one of the vital issues, that the treatment has its greatest field of usefulness. Motion of an infected joint should not create muscle spasm. It should be painless and free of the fear of pain, and there should be no discomfort in the joint after the patient returns to bed. The use of the salt pool satisfies all these requirements. Motion in the water mechanically cleans away the infection, and because the water is hypertonic there exists an osmotic pressure between this fluid and the body fluids, so that drainage is encouraged and accelerated from the innermost depths of the wound. The salt concentration of the water in the pool is between 6 and 7 per cent. At this concentration the water sterilizes itself, as cultures have always been negative. The temperature of the pool is maintained at about 96 F. and the treatment lasts about thirty minutes. The floor of the pool should be sloping, so that weight bearing on an infected joint can be gradually increased. The weight of the body standing in water is the weight of that part of the body above the water line. For the eight cases of suppurative arthritis without bone involvement the average time required for healing was 2.8 months, and complete motion was restored in every case in an average of five months. It has been the author's practice in cases of osteomyelitis involving the ends of long bones and in which there is an accompanying suppurative arthritis to do a wide saucerization of the bone, removing as much of the diseased bone as possible and packing the wound lightly with petrolatum gauze, as in the Orr treatment. The joint is also opened and irrigated. A plaster cast or spica is applied, depending on the bone involved. The cast is removed in from four to six weeks, which is about the time the first

change of cast is made in the Orr treatment. A splint is applied and daily pool treatment started. In the twelve cases of this type return of motion was complete in four and one-half, normal in five, and ankylosis occurred in four. There were ten cases in which the osteomyelitic process, while not involving the joint proper, was in very close approximation to the joint, involving at times the epiphyseal plate. In these ten cases the disease process was in close approximation to thirteen joints. There was complete return of motion in seven, and in the other six the residual motion averaged about one-half normal.

Colorado Medicine, Denver

34:153-224 (March) 1937

- Septic Complications of Sore Throat. H. I. Laff, Denver.—p. 166.
Medical Treatment of Upper Respiratory Infections. D. Clark, Denver.—p. 173.
Current Activities of the State Board of Medical Examiners. V. A. Hutton, Florence.—p. 183.

Delaware State Medical Journal, Wilmington

9:35-52 (March) 1937

- Diagnosis and Management of Gallbladder Disease. T. G. Miller, Philadelphia.—p. 35.
Results of Gallbladder Examinations by Varying X-Ray Technic. B. M. Allen, Wilmington.—p. 43.
Preliminary Observations on Clinical Use of Zinc Protamine Insulin in Outpatients. L. B. Flinn, Wilmington.—p. 45.

Georgia Medical Association Journal, Atlanta

26:89-128 (March) 1937

- Congenital Hypertrophic Pyloric Stenosis: Statistical Study of 140 Cases. R. C. McGahee, Augusta.—p. 89.
Hemorrhages of the Brain: Their Differentiation and Treatment. J. C. Weaver, Atlanta.—p. 97.
When Antiseptic Surgery Came to Georgia. T. C. Davison, Atlanta.—p. 102.
History of Urology in Georgia. S. T. Brown, Atlanta.—p. 105.
*Dissecting Aneurysm of Aorta. E. B. Agnor, Atlanta.—p. 108.
*Corneal Ulcer and Epitheliitis: Report of Cases. R. M. Nelson, Atlanta.—p. 112.
Treatment of Premature Systoles with Quinidine and Strychnine. J. E. Walker, Columbus.—p. 112.

Dissecting Aneurysm of Aorta.—Agnor groups clinical phenomena taking place in dissecting aneurysm of the aorta under four primary clinical features. 1. The mode of onset is characteristically abrupt. It follows at once, or within a few hours, many forms of physical stress. 2. Pain is the outstanding symptom. It is described as violent, sharp, knifelike, tearing or rendering, and is extreme in its intensity. It is usually precordial, but its segmental distribution is likely to be higher than the pain of coronary disease. Its radiation may be down the outer rather than the inner side of the arm. It is constant and continuous, and morphine alone will give relief. With the progress of the dissection there is pain in the back, in the abdomen, in the lumbar or sacral region and even running down the leg. 3. Among the abnormal circulatory phenomena there are various harsh, rumbling or hissing systolic murmurs heard over the heart and great vessels. The pulses are frequently unequal or absent in various regions. Bilateral blood pressure readings are helpful. Often one limb or part of a limb may become cool and pallid, and even gangrene may develop. 4. The effects of disturbances of circulation in other organs or systems are many. There may be complete obstruction of the carotid circulation with encephalomalacia, hemiplegia and death. The coronary circulation is less frequently interrupted. There may be sufficient compression of the renal arteries to produce anuria. Cases in which there was paralysis as a result of interference with the blood supply of the spinal cord have been encountered. There may be pain between the shoulder blades at the onset. The pain may be largely epigastric, and an acute peritoneal irritation may be suggested.

Iowa State Medical Society Journal, Des Moines

27:93-138 (March) 1937

- Perennial Vasomotor Rhinitis. H. J. Rinkel, Kansas City, Mo.—p. 93.
Environmentally Conditioned Behavior Problem. H. E. Weatherly, Iowa City.—p. 98.
Dependability of Wassermann and Kahn Tests in Diagnosis of Syphilis. M. P. Spanswick and R. G. Snyder, Iowa City.—p. 102.
Treatment of Paresis: Based on Analysis of 113 Patients. M. C. Wheelock, Cherokee.—p. 106.
Vaginal Uterolithotomy. W. K. Hicks, Sioux City, and G. Maris, Hull.—p. 107.
Sudden Death. H. W. Morgan, Mason City.—p. 110.

Journal of Nutrition, Philadelphia

12:235-338 (March 10) 1937

- Study of Effect of Vitamin B and Iodine on Weight, Iodine Content and Structure of Thyroid Gland of Rat. Mary Doris Carpenter and G. R. Sharpless, Detroit.—p. 235.
Composition of Milk from Stock Rats and Apparatus for Milking Small Laboratory Animals. W. M. Cox Jr. and A. J. Mueller, Evansville, Ind.—p. 249.
Consideration of Nutritive State in Metabolism of Women During Pregnancy. Frances Cope Hummel, Helen A. Hunscher, Mary F. Bates, Priscilla Bonner, Icie G. Macy and J. A. Johnston, Detroit.—p. 263.
Determination of Vitamins B and G in Human Urine by Rat Growth Method. O. M. Helmer, Indianapolis.—p. 279.
Influence of Carbohydrate on Nitrogen Metabolism in Normal Nutritional State. P. S. Larson and I. L. Chaikoff, Berkeley, Calif.—p. 287.
Further Studies Concerning Formation of B Vitamins in Digestive Tract of Rat. N. B. Guerrant, R. A. Dutcher and R. A. Brown, State College, Pa.—p. 305.
Influence of Lack of Vitamin A in Diet on Phagocytosis Promoting Properties of Blood Serum. E. Gellhorn and Joan O. Dunn, Chicago.—p. 317.
Photometric Determinations of Urea, Uric Acid, Creatinine and Hemoglobin in Blood of Scorbatic Guinea-Pigs. Sue Potter Vilter and Ruth Johnston, Wellesley, Mass.—p. 329.

Kansas Medical Society Journal, Topeka

28:89-132 (March) 1937

- Exomphalos. H. M. Glover, Newton.—p. 89.
Agranulocytosis. F. E. Angle, La Verne B. Spake and W. H. Algit, Kansas City.—p. 93.
*Potential Malignancy of Small Skin Lesions. R. L. Sutton Jr., Kansas City, Mo.—p. 97.
Aseptic Meningitis Following Spinal Anesthesia. H. N. Tihen, Wichita.—p. 100.
Recurring Inguinal Hernia. C. L. Wilmoth, Denver.—p. 101.

Potential Malignancy of Small Skin Lesions.—Sutton asserts that malignancy is not potential; it is there from the start or not there at all. "Cancer" does not connote a lesion that will eat one's head off in three weeks; it connotes a colony of cells derived from an altered mutant somatic cell, which may grow swiftly or slowly or not at all. The "warts" are not warts; they are cancer from the start. They do not degenerate, they grow. They do not become malignant; their cells are malignant. Malignancy resides in the cellular units of the lesion. Given the presence of a malignant condition, it is measured by their proliferative rate as compared with the proliferative rate of normal cells. The mutation theory of the origin of cancer is eminently satisfactory philosophically, biologically and practically. No better explanation of the cause of cancer will be evolved until the chemistry and physiology of chromosomes and their component genes is better understood. The cure of cancer lies in its early recognition and adequate treatment, preferably with the hot iron. Wide excision is the safest and most secure therapeutic measure, excepting lesions superficial enough to be blistered off without necessitating excision.

Maine Medical Journal, Portland

28:43-70 (March) 1937

- Three Outstanding Individuals. W. E. Tobie, Portland.—p. 43.
Functions of the County Medical Society and Its Value to the Profession. L. J. Wright, Bangor.—p. 50.
*Complications of Diabetes Mellitus and Their Treatment. J. O. Piper, Waterville.—p. 53.
Observations on Use of Protamine Insulin. H. S. Everett, St. Stephen, N. B.—p. 58.

Complications of Diabetes Mellitus.—Piper discusses coma, neuritis, infection, gangrene, arteriosclerosis and associated heart degeneration as the complications of diabetes mellitus. Diabetic coma must always be considered an emergency and treated as such. Before the use of insulin it was almost 100 per cent fatal and since the use of insulin it is almost 100 per cent curable if handled properly. The diagnosis of diabetic coma is established by always finding the blood sugar elevated to a high degree and the combining power of carbon dioxide decreased markedly. Neuritis is a troublesome complication of diabetes. There is no special treatment for this condition, except to control the diabetes in the best possible manner. The neuritis may persist for a long time after the diabetes is under control, but recovery almost always occurs. There is little evidence to show that diabetes is caused by infection but a great deal of evidence that it is made worse by it; in fact, mild diabetes may be turned into a very severe form of this disease. Infections are very prone to occur in the diabetic patient and advance rapidly. Hence a vicious circle

is set up. The diabetes is made worse by the infection and the infection is aided by the diabetes. In treating these infections this vicious circle must be broken and the best way is to incise freely all pus pockets and institute free drainage. The best known treatment for infection in the known diabetic patient is prophylaxis, by teaching the patient the proper hygiene of all parts of the body. The several types of gangrene in diabetes are the arteriosclerotic, obliterative endarteritic, embolic and obliterating thrombo-angiitic and diabetic. The diabetic form is distinctive from the others in that the gangrene spreads laterally as well as along the vessels or line of circulation. Circulation is always interfered with in these cases. Then if a very slight infection takes place, which may come from as small an injury as a cut on the toe from trimming the toenail, gangrene is apt to set in. Sometimes the infection seems to come from within. Conservative treatment can be carried out only on the diabetic gangrene, and this is probably successful only in the early cases. Conservative treatment does not offer much in the first three types of gangrene. The mortality of amputation cases is fairly high. Most of these patients die from septicemia and bronchopneumonia. Joslin states that the average span of life after amputation is two years. He believes that arteriosclerosis is secondary to diabetes and that the duration of the disease is an important factor in the production of it. He found that diabetes of a duration of five years or longer is practically always complicated by arteriosclerosis. It has been shown that arteriosclerosis progresses in the diabetic patient in spite of the proper treatment with diet and insulin. Every diabetic patient should receive a searching examination, especially relating to the condition of the heart muscle and for coronary damage. Distinct damage may be done by the use of insulin in the treatment of these cases, and death may ensue in some of them.

Medical Annals of District of Columbia, Washington

64:29-52 (Feb.) 1937

- Recent Advances in Proctology. G. W. Ault, Washington.—p. 29.
Endocrines in Relation to Tumors, with Especial Reference to Aschheim-Zondek Test in Teratoma Testis. J. W. Lindsay, E. C. Rice and M. A. Selinger, Washington.—p. 38.
Calcified Hydrocele. N. Belt, Washington.—p. 42.

Surgery, Gynecology and Obstetrics, Chicago

64:593-720 (March) 1937

- *Mammography: Roentgenographic Diagnosis of Breast Tumors by Means of Contrast Mediums. N. F. Hicken, Omaha.—p. 593.
Diffuse Colloid Goiter. C. A. Hellwig, Wichita, Kan.—p. 604.
Cancer of the Breast: Prognosis in Surgically Treated Cases. A. Graham, Cleveland.—p. 609.
Clinical and Laboratory Findings After Excessive Loss of Intestinal Fluid from Ileum. C. S. Welch, J. C. Masson and E. G. Wakefield, Rochester, Minn.—p. 617.
*Resistance of Sphincter of Oddi in the Human. H. Doubilet and R. Colp, New York.—p. 622.
Hydronephrosis in Infancy and Childhood: Clinical Data and Report of 101 Cases. H. L. Kretschmer, Chicago.—p. 634.
Frequency of Conceptions in Families Having Congenitally Malformed Children: Study of 208 Consecutive Families. D. P. Murphy, Philadelphia.—p. 646.
Clinical Study of Catgut in Relation to Abdominal Wound Disruption, with Test of Its Tensile Strength on Patients. H. P. Jenkins, Chicago.—p. 648.
Fractures of Os Calcis. R. F. Jaekle and A. G. Clark, Boulder City, Nev.—p. 663.
Arthroplasty in Ankylosis of Knee by Interposition of Patellar Flaps. J. Elgart, Kromeriz, Czechoslovakia.—p. 673.
Neglected and Recurrent Basal Cell Epitheliomas of Face. H. W. Meyer, New York.—p. 675.
Significance of "Folded Fundus" Gallbladder. M. E. Lichtenstein, Chicago.—p. 684.
Prolapse of Gastric Mucosa Through Pylorus: Surgical Treatment. C. E. Rees, San Diego, Calif.—p. 689.
Safety Factors in Spinal Anesthesia. G. H. Pratt, New York.—p. 695.
*Pelvic Variations in 300 Primiparous White Women: Clinical Study and Proposed Classification. H. Thoms, New Haven, Conn.—p. 700.
How Surgery of Colon and Rectum Developed. F. W. Rankin, Lexington, Ky.—p. 705.

Mammography.—Hicken believes that contrast mammograms and aeromammograms have a definite diagnostic value. He presents seven cases. Injection of the estuaries is occasionally a tedious procedure and in some instances cannot be accomplished. No injection or manipulation should be done in the presence of an acute infection. As soon as the mammographic studies have been completed a gentle milking massage of the nipple expresses the major portion of the injected

medium, thus minimizing the amount to be retained. Application of the breast pump has likewise proved effective in decompressing the injected lobules. In nearly every instance in which a lactating breast was injected the patient experienced some soreness and discomfort for a period of from twelve to twenty-four hours. In thirty-five instances there was no interference with the flow of milk, and no mastitis or infection occurred. The transitory pains were of a mild nature and easily controlled by the application of hot moist packs. Strict surgical asepsis should be practiced lest an infection be introduced. Diagnostically, the contrast mammograms are far superior to the soft tissue roentgenograms in the recognition of mammary tumors. In each of the seven cases presented the mammographic studies gave an excellent visual pattern of the offending neoplasms, while the soft tissue roentgenograms were either indefinite or completely void of information. Papillomas, simple retention cysts, cystic degeneration of the breast, galactoceles, carcinomas and retention mastitis were diagnosed by mammographic studies. Of the 314 mammograms made but one breast abscess resulted, and in this instance the patient had a pyogenic mastitis prior to injection studies.

Resistance of Sphincter of Oddi in Man.—Doubilet and Colp made measurements of the resistance of the sphincter of Oddi obtained in patients who have had a T tube intubation of the common bile duct. A method was developed for the kymographic recording at the bedside of the resistance of the sphincter to the flow of fluid in the duodenum. Advantage was taken in these cases to observe the effect of local application of drugs to the periampullary region of the duodenum and of hypodermic injections of the various drugs commonly used in clinical practice. Spasm of the common duct sphincter has been shown to exist in human cases. Ingestion of food does not cause sphincteric relaxation in the absence of the gallbladder. Duodenal lavage with magnesium sulfate causes relaxation of the sphincter. Instillation of diluted hydrochloric acid into the duodenum causes temporary sphincteric spasm. This reflex is prevented by atropinization. Morphine produces severe sphincteric spasm, which lasts more than three hours. This spasm is not influenced by atropine. Papaverine may produce a temporary relaxation of a spastic sphincter but ordinarily has slight effect. The effect of epinephrine on the sphincteric resistance was negligible.

Pelvic Variations in Primiparous Women.—Thoms emphasizes the advantages of applying the newer knowledge of pelvic variations to practical obstetrics and presents a survey of the results in 300 primiparous white women who have been delivered consecutively at full term in whom roentgenometry of the pelvis has formed a part of the antepartum examination. He has used roentgenometric methods almost as a routine for nearly four years, and he is convinced that their use has simplified many obstetric problems. For example, in none of the cases presented was "the test of labor" used and, from the fact that cesarean section was performed only six times in 300 consecutive primiparous women, it appears that radical measures were not substituted for the more conservative procedures. Exact dimensions of the pelvis as revealed by roentgenometry are not a substitute for careful obstetric judgment as developed by clinical experience. The information thus obtained, like paint on an artist's easel, must be "mixed with brains." The employment of the contour of the superior strait as a basis for classification will allow all but the most abnormal pelves to be readily grouped. If other features of obstetric importance present themselves, such as the male type of sacrosciatic notch, narrow forepart, narrow subpubic angle, and forward displacement of the lower sacrum, these features may be noted. Every woman who is expecting her first baby deserves the advantages offered by roentgenometry of the pelvis.

Tennessee State Medical Assn. Journal, Nashville

30:41-82 (Feb.) 1937

- Uretero-Enterostomy: Combination of Coffey, Ferguson and Brenizer Methods. L. W. Edwards and H. L. Douglas, Nashville.—p. 41.
Diphtheria Control Program for Tennessee. W. C. Williams, Nashville.—p. 49.
Present Status of Surgery of Autonomic Nervous System. T. D. McKinney, Nashville.—p. 51.
The Management of Glaucoma. A. H. Benz, Chattanooga.—p. 57.
Obesity and Malnutrition. H. B. Gotten, Memphis.—p. 61.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

14: 45-92 (Jan.) 1937

- Pulmonary Complications Following Nasal Endotracheal Anesthesia. C. J. M. Dawkins.—p. 45.
Preventable Mortality and Morbidity in Anesthesia. H. Grant-White.—p. 55.

British Journal of Experimental Pathology, London

18: 1-82 (Feb.) 1937

- Myxoma and Shope Fibroma: I. Histology of Myxoma. E. W. Hurst.—p. 1.
Id.: II. Effect of Intracerebral Passage on Myxoma Virus. E. W. Hurst.—p. 15.
Id.: III. Miscellaneous Observations Bearing on Relationship Between Myxoma, Neuromyxoma and Fibroma Viruses. E. W. Hurst.—p. 23.
Further Studies on Antigenic Differences in Mouse Erythrocytes. P. A. Gorer.—p. 31.
Influenza Virus on Developing Egg: IV. Pathogenicity and Immunizing Power of Egg Virus for Ferrets and Mice. F. M. Burnet.—p. 37.
*Influenza: Further Experiments on Active Immunization of Mice. C. H. Andrewes and W. Smith.—p. 43.
Improved Precipitation Reaction Viewing Apparatus. L. C. Nickolls and J. C. Thomas.—p. 55.
Experimental Renal Lesions and Blood Pressure in Rabbits. R. W. Scarff and M. McGeorge.—p. 59.
Antigenic Composition and Virulence of Bacterium Typhosum Grown on Chemically Defined Medium. G. P. Gladstone.—p. 67.

Experiments in Prophylaxis of Influenza.—Andrewes and Smith carried out experiments on mice with a view to obtaining the most favorable antigen for trial as a prophylactic for influenza in man. Their objectives were to obtain a suspension with as high a virus content as possible, to purify this by freeing it from undesirable constituents and to inactivate the virus, if possible, without destroying its antigenic value. Subcutaneous and intraperitoneal inoculation of living influenza virus into mice confers on them substantial immunity against intranasal infection. Influenza virus can be purified partially by washing on a collodion membrane without great loss of titer; this washed virus immunizes mice as effectively as does crude virus. Influenza virus inactivated by 1:5,000 or 1:10,000 formaldehyde immunizes mice almost or quite as effectively as does living virus. Virus inactivated by formaldehyde as strong as 1:1,000 still makes a good vaccine and keeps its potency, at least in part, for two months in the cold. Influenza virus that has been both purified by washing and inactivated by formaldehyde makes a relatively poor vaccine for mice. Preliminary experiments on five human beings indicate that subcutaneous inoculation of influenza virus inactivated with formaldehyde will produce in at least some subjects a substantial rise in their neutralizing antibodies for influenza virus. The W. S. strain (unfiltered suspensions) of influenza virus appears in the course of passages through mice to have undergone a rather sudden spontaneous change of such a nature that it is now possible to obtain filtrates of from ten to 100 times as high a titer as formerly.

British Journal of Tuberculosis, London

31: 1-48 (Jan.) 1937

- Technic of Thoracoplasty. H. M. Davies.—p. 3.
Sympathetic Shock in Thoracoplasty: Preliminary Note. F. R. Edwards.—p. 7.
Surgery in Closure of Tuberculous Lung Cavities. T. H. Sellors.—p. 13.
*Spontaneous Healing of Cavities in Pulmonary Tuberculosis: Influence of Altitude. B. Hudson.—p. 18.
*Influence of Administration of Vitamin C on Blood Sedimentation and Sensitivity to Tuberculin. F. H. Heise, G. J. Martin and S. Schwartz.—p. 23.
Study of Certain Factors Affecting Sedimentation Test. Mary F. Lockett.—p. 31.

Healing of Cavities in Pulmonary Tuberculosis.—Hudson asserts that the most desirable way of causing the obliteration and healing of a cavity is by rest, climatic treatment and time. This natural healing certainly may occur and is without any doubt favored by residence in the Alpine climate. Usually, if closure is going to take place in this climate, it shows signs of doing so fairly rapidly—in from three to six or seven months.

If after that time no sign of change, alteration in shape or diminution of the size of the cavity can be seen, it is very unlikely that it will close by natural means. Owing to the altitude of the Alps, the air is rarefied and the barometric pressure lower than at sea level; therefore the partial pressure of oxygen is correspondingly diminished. The physiologic effect of this is that breathing becomes deeper in order that the tissues may receive their proper oxygenation. For the same reason the blood changes its character, the red cells and hemoglobin showing an increase. The total amount of the blood is also actually augmented. The air, being drier, has a stimulating effect on the respiratory membranes. There is also a remarkable absence of wind and dust, especially during the winter months when the snow is on the ground. The Alpine climate exerts considerable influence on the metabolism and general health of a patient, and locally on the respiratory mechanism and membranes.

Influence of Vitamin C on Sensitivity to Tuberculin.—Heise and his co-workers determined the influence of vitamin C on the blood sedimentation rate and the tuberculin skin test in thirty tuberculous patients; six were used as controls. The urinary excretion of vitamin C was previously determined in each from a twenty-four hour specimen of urine. The sedimentation rates were determined immediately before the use of vitamin C and again after the final injection. Preliminary subnormal urinary excretion of vitamin C was demonstrated in nineteen of those receiving added vitamin C and in all the controls. Of the nineteen with preliminary subnormal urinary excretion of vitamin C, 47 per cent showed a significant decrease and 10 per cent an increase in sedimentation rate following vitamin C injection; 43 per cent showed no change. Of five patients with previously normal vitamin C urinary excretion, none showed significant changes in the sedimentation rate after injection of vitamin C. No alteration in the sedimentation rate was observed in the six controls after a period of five days. It seems that in a large number of cases a condition of hypovitaminosis C may influence the sedimentation rate. In the study of the effect of vitamin C on tuberculin skin sensitivity, sixteen patients were given a test with sufficient tuberculin to cause only a mild intradermic reaction; six of these patients were used as controls and received no cevitic acid. A distinct decrease in sensitivity to the same dose of tuberculin was found after the patient received cevitic acid, and those receiving cevitic acid responded less acutely to a retest with stronger tuberculin than did the controls. The average increase in the twenty-four hour erythema readings in the controls was 351 sq. mm., as contrasted with 76 sq. mm. increase in those receiving cevitic acid. At forty-eight hours the differences were not so marked. The observations indicate that in the presence of saturation with cevitic acid tuberculin sensitivity becomes less.

British Medical Journal, London

1: 311-374 (Feb. 13) 1937

- Progesterone in Preeclamptic Toxemia. J. M. Robson and S. J. Paterson.—p. 311.
*Relation Between Hypochromic Anemias and Iron Deficiency. J. F. Brock.—p. 314.
Treatment of Gonorrhea with Specific Antitoxin. T. Anwyl-Davies.—p. 321.
Outbreak of Food Poisoning in an Institution. A. R. Culley.—p. 325.
Treatment of Depressed Fractures of Malar Bone. A. B. K. Watkins.—p. 326.

Relation Between Hypochromic Anemias and Iron Deficiency.—Brock uses the term "hypochromic anemia" to signify cases in which the blood picture is characterized by a low color index, hypochromia and microcytosis in the stained film, and a low mean corpuscular hemoglobin concentration. Examination of the facts of the distribution and exchange of iron in the body lends support to the view that the hypochromic anemias are the result of a state of iron deficiency in the body. The repeated association of hypochromic anemia with conditions that would be expected to lead to iron deficiency and the specific cure of the anemia with iron strongly favor the view that the hypochromic anemias are conditioned by a state of iron deficiency in the body. In considering the response of the blood to iron reaching the body by way of

the intestine in patients with hypochromic anemia, three selected cases are presented which illustrate different forms of response. Two cases, supported by a considerable body of corroborating evidence, suggest that large doses of iron which lead to the accumulation of a great excess of iron in the tissues are more effective in certain cases of hypochromic anemia than are smaller doses which allow of absorption of enough iron for hemoglobin formation. This mysterious efficacy of large doses is the baffling problem of the relation of the hypochromic anemias to iron deficiency. In some cases of hypochromic anemia, all that is required is sufficient iron by mouth to supply about 50 mg. daily for new hemoglobin and an undetermined but probably smaller amount for the replenishment of other tissues in the body which have become iron deficient. Another group of hypochromic anemias appears to respond only when iron is given in doses that lead to the accumulation in the body of amounts up to 200 mg. daily. There is at present no rational explanation of the necessity for such large doses. In resistant cases the dose should always be raised to the maximum before despairing of iron, and, since there are still many unexplained factors in the etiology of hypochromic anemia, a diet rich in protein and vitamins should always be insisted on.

East African Medical Journal, Nairobi

13: 295-330 (Jan.) 1937

- Control of Syphilis. J. H. Sequeira.—p. 295.
Conjunctivitis and Its Treatment. R. J. Harley-Mason.—p. 306.
Breeding Habits of Some House-Frequenting Flies in Uganda: Notes. E. G. Gibbons.—p. 318.

Glasgow Medical Journal

9: 53-104 (Feb.) 1937

- Therapeutics in Medical Practice. J. C. Middleton.—p. 53.
Thomas Reid: An Appreciation. A. M. Ramsay.—p. 66.

Guy's Hospital Reports, London

87: 1-144 (Jan.) 1937

- Modification of Howard Jones Technic for Use of Percaine in Spinal Anesthesia. T. A. B. Harris and E. H. Rink.—p. 1.
Nature and Relationship of Functional Nervous Disorders to Rheumatism in Childhood. W. L. Neustatter.—p. 8.
*Studies on Chemistry of Gaucher's Disease: Analysis of Three Spleens. R. H. S. Thompson and G. P. Wright.—p. 30.
Studies on Tumor Formation. G. W. Nicholson.—p. 46.
New Study of Heat Production in Man. T. W. Adams and E. P. Poulton.—p. 107.

Studies on Chemistry of Gaucher's Disease.—Thompson and Wright obtained portions of spleen from three cases of Gaucher's disease for chemical analysis. The study confirms Lieb's discovery that the essential pathologic change is a specific storage of kersasin. The distended "Gaucher cells" may be merely the result of an absorptive action of the histiocytes on an increased blood kersasin. This hypothesis, however, involving an increased blood kersasin, merely shifts the mystery of the origin of the kersasin back one stage. An alternative theory, based on the assumption that the galactolipins are possible important intermediaries in the antibody responses of the reticulo-endothelial system, suggests itself as the result of recent work on certain aspects of immunologic chemistry. In view of the work of Drury and his collaborators it is conceivable that the galactolipins, whose physiologic rôle in the body is at present unknown, may play a part in the production of antibodies by the reticulo-endothelial cells, and that Gaucher's disease may be some "inborn error of metabolism" of the mechanism responsible for some stage in the antibody production of the body, whereby excessive quantities of kersasin are synthesized and stored by the reticulo-endothelial cells. It appears also that certain substances, soluble in the lipid solvents and possibly related to the galactolipins, may play some part in the antigenic phenomena of both tissues and bacteria. Recent work on the chemistry of the tubercle bacillus also suggests that substances soluble in lipid solvents play an important part in the immunologic responses initiated by this organism. Whatever the etiology of the condition, Gaucher's disease affords to the chemist opportunities of study of a class of compounds the biologic function and origin of which are at present almost completely unknown.

Irish Journal of Medical Science, Dublin

No. 133: 1-48 (Jan.) 1937

- Osteitis Deformans (Paget's Disease). P. T. O'Farrell.—p. 1.
Etiology and Treatment of Functional Uterine Bleedings. D. J. Cannon.—p. 11.
Granulosa Cell Tumor of Ovary: Case. B. Solomons.—p. 32.
Agranulocytosis. G. Bewley and S. V. Furlong.—p. 34.
Plummer-Vinson Syndrome: Dysphagia Associated with Anemia. T. O. Graham.—p. 38.

Journal of Hygiene, London

37: 1-152 (Jan.) 1937

- *Infection of Air of Scarlet Fever Wards with *Streptococcus Pyogenes*. W. A. Brown and V. D. Allison.—p. 1.
Significance of Density, Refractive Index and Viscosity of Mineral Oils in Relation to Type and Degree of Animal Reaction. C. C. Twort, R. Lyth and J. M. Twort.—p. 14.
*Daily Water Consumption of Adults. H. E. Magee.—p. 30.
Serologic Diagnosis of Enteric in Inoculated. C. P. Beattie and J. S. Elliot.—p. 36.
Endotoxin of *Meningococcus*. G. F. Petrie.—p. 42.
Coagulation Between *Bacillus Typhosus* and *Bacillus Paratyphosus* B. J. Wyllie.—p. 70.
New Species of Micro-Organism (*Proteus Melanovogenes*) Causing Black Rot in Eggs. A. A. Miles, with an introduction by E. T. Halnan.—p. 79.
Serologic Study of *Haemophilus Influenzae*. A. E. Platt.—p. 98.
Fertility and Its Relation to Social Conditions: Study of Vital Statistics of London in 1930-1932. K. Mitra.—p. 108.
International Experiment on Widal Reaction. A. D. Gardner.—p. 124.
Pleuropneumonia-like Organism in Lung Lesions of Rats, with Notes on Clinical and Pathologic Features of Underlying Condition. Emmy Klieneberger and Dorothy B. Steabben.—p. 143.

Streptococcus Pyogenes in Air of Scarlet Fever Wards.—Brown and Allison experimented to isolate *Streptococcus pyogenes* from the air of scarlet fever wards. The method was to expose six blood agar plates to the air in each of four wards for three hours during three different periods of the twenty-four hours. The air was found to contain large numbers of hemolytic streptococci, most of which could be identified serologically. In one ward, in which the throats of the patients were swabbed, the serologic types identified were found to correspond to the types infecting patients in the ward. The degree of infection of the air with hemolytic streptococci showed considerable variation during the twenty-four hours. During the night, infection was absent or negligible; in the morning there was a steep rise followed by a slight fall in the degree of infection during the early afternoon. This variation is probably associated with the degree of air movement in the ward produced by the staff in the execution of their duties. Hemolytic streptococci were widespread in the ward air and the serologic types identified were not confined to the neighborhood of patients infected with a particular type. Though contact with infected hands, instruments, books and toys is probably of considerable importance in the transmission of infection with *Streptococcus pyogenes*, and though droplet transmission no doubt occurs as in other infections of the respiratory tract, the possibility of infection by the air cannot be dismissed, especially in multiple-bed wards in which patients infected with many different serologic types of hemolytic streptococci are being nursed.

Daily Water Consumption of Adults.—Magee determined the consumption of water and milk in the form of beverages, fluid foods and foods to which water or milk was added in cooking over a period of a week in two public assistance institutions containing 166 adults and three children. The consumption of water in the form of solid foods could not be estimated directly but was calculated from the results obtained from quantitative dietary studies of ten working-class families whose diet was adequate. The intake of water in solid food was calculated as 0.97 pint for men and 0.8 pint for women per head daily. Water formed in oxidation was assumed to be 300 cc. per head daily for men and 250 cc. for women. The total water consumed and formed in the body was therefore probably in the region of 4.93 pints (2,799 cc.) per head daily for men and 5.08 pints (2,885 cc.) per head daily for women. The water supplies of the institutions are soft and the amounts of calcium consumed in water were very small and are probably not of much nutritional significance. Hard waters are, however, probably of some importance as sources of calcium, especially when the diet otherwise is poor in this mineral. The amounts of milk consumed per head daily were in excess of

half a pint, 480 cc., and the amount of calcium consumed in the form of milk amounted to more than half the standard requirement for adults. The calcium intake in both institutions was probably adequate.

Journal of Laryngology and Otolaryngology, London

52: 65-152 (Feb.) 1937

- Abnormal Forms of Tuberculosis Simulating Cancer of Larynx and Their Converse. A. Hautant.—p. 65.
Upper Dysphagia. D. R. Paterson.—p. 75.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

44: 1-220 (Feb.) 1937

- Fruits of Conservatism. V. Bonney.—p. 1.
Dysmenorrhea: the Oldest Theories and the Newest Treatment. D. J. Cannon.—p. 13.
*Treatment of Functional Uterine Hemorrhage by Means of Gonadotropic and Ovarian Hormones. T. N. A. Jeffcoate.—p. 31.
Use of Radium in Treatment of Benign Uterine Bleeding. P. Malpas.—p. 86.
Obstructed Labor Caused by Cervical Fibroid Undergoing Red Degeneration, and Complicated by Placenta Praevia and Prolapse of Fetal Cord: Case. C. Moir.—p. 105.
Treatment of Uterine Hemorrhage in Nonmalignant Disease, with Especial Reference to Choice of Surgical Operation versus Irradiation by Radium or X-Rays. L. Martindale.—p. 109.
Observation on Etiology of Abruptio Placentae and Its Response to Vitamin E Therapy. E. Shute.—p. 121.

Endocrine Treatment of Functional Uterine Hemorrhage.—With a view of assessing the value of the use of gonadotropic and ovarian principles in the control of functional uterine hemorrhage, Jeffcoate discusses eighty cases and reviews those recorded in the literature. The conclusions are that the use of ovarian and gonadotropic substances in the treatment of functional uterine hemorrhage does not produce the brilliant results which some authors have claimed for it. Until the present views and theories regarding the ability of estrogen to produce luteinization are confined or clarified, there is no theoretical basis for the administration of this substance in the treatment of functional uterine hemorrhage, unless this bleeding is associated with endometrial atrophy or represents merely a menopausal menstrual irregularity or slight loss at the time of ovulation. The results obtained with corpus luteum appear as good as those accruing from the use of gonadotropic substances. The type of bleeding showing the best response is that which is nonovular in type, as in hemorrhagic metropathia. Pubescent and adolescent hemorrhage is very amenable to the treatment, but menopausal hemorrhage shows very little response. At puberty the bleeding is controlled in 80 per cent of cases, but of all patients suffering from functional uterine hemorrhage only 66 per cent derive real benefit. The treatment controls the bleeding only temporarily: any subsequent amenorrhea or return to the normal cycle merely represents the ordinary probabilities of such cases. A return of hemorrhage is not infrequent and the organotherapy of the relapse is more difficult than that of the original bleeding. Any ill effects of treatment are considered rare and constitute no real disadvantage to the practice of organotherapy in these cases.

Lancet, London

1: 307-368 (Feb. 6) 1937

- Progress in Treatment of Fractures. R. S. Woods.—p. 307.
*New Factor in Production and Cure of Certain Macrocytic Anemias. Lucy Wills, P. W. Clutterbuck and Barbara D. F. Evans.—p. 311.
Tuberculous Lesions in Association with Genito-Urinary Tuberculosis. M. C. Wilkinson.—p. 314.
Genito-Urinary Tuberculosis: Review of One Hundred Cases. F. Harvey.—p. 316.
Effect of an Anti-Vi Bacteriophage on Typhoid Infection in Mice. I. N. Asheshov, Joyce Wilson and W. W. C. Topley.—p. 319.
Estradiol Benzoate Therapy in Depressions at Menopause. M. S. Jones, T. N. MacGregor and H. Tod.—p. 320.

New Factor in Production and Cure of Certain Macrocytic Anemias.—The work described by Wills and her collaborators suggests that at least two hematopoietic factors are present in all those extracts which are active both in true pernicious anemia in man—some only after incubation with normal gastric juice—and in the nutritional macrocytic anemia of the monkey. It is only when the principles concerned are obtained in a relatively pure form that their different action becomes clear. This monkey anemia appears to be due, in part

at least, to the lack of some other factor at present unidentified. It seems possible, however, that the two factors are concerned both in the monkey anemia and in pernicious anemia, and there is some evidence that this view is correct. For example, the more sustained response in the monkey to the crude extracts in comparison with the response to the more highly purified fractions, even when these are given in doses derived from far larger amounts of the parent substance than those used in the preparation of the cruder extracts, points in this direction. The fact that one monkey responded well to large doses of anahemin, when given immediately after the parenteral injection of the monkey fraction from yeast, also suggests that this principle is necessary for normal hematopoiesis in the monkey. The crude extracts may well contain both factors. If there is in the monkey suffering from macrocytic nutritional anemia a deficiency of both factors but a relatively greater lack of the new factor, the administration of the latter may activate the small supply of the liver principle still available in the body. The liver principle thus activated will cause an initial rise in the red cell count, which however will not be sustained when the small supply of the liver principle is exhausted. Accepting this explanation of the action of the new factor as correct, there might well be exceptional cases of pernicious anemia in which there is a deficiency not only in the liver principle contained in anahemin but also in the new hematopoietic factor. Such cases would either not respond to anahemin or make a poor unsustained response, but would respond to the cruder preparations. It is possible that the new factor is allied chemically to the hematopoietic substance earlier isolated by Cohn, McMeekin and Minot (1930) rather than to anahemin or hematopoietin.

Practitioner, London

138: 121-224 (Feb.) 1937

- Constipation and Its Treatment. A. F. Hurst.—p. 121.
Carcinoma of Stomach and Intestines. E. C. Hughes.—p. 129.
Chronic Peptic Ulcer. T. Hunt.—p. 139.
Nervous Dyspepsia. D. T. Davies.—p. 151.
Digestive Disorders of Childhood. R. W. B. Ellis.—p. 159.
Indications and Technic of Pleural Aspiration. L. S. T. Burrell.—p. 169.
Odor and Color of Urine in Health and Disease. A. Abrahams.—p. 177.
Erythema Nodosum. A. H. Holmes.—p. 181.
Head Injuries. H. Jackson.—p. 188.
Influence of Altitude on Asthma. B. Hudson.—p. 202.
General Practice: VIII. Financial Side of Practice. By an Ex-Inspector of Taxes.—p. 206.

Quarterly Journal of Medicine, Oxford

6: 1-92 (Jan.) 1937

- Study of Choline Esterase Activity in Nervous and Mental Disorders. H. Tod and M. S. Jones.—p. 1.
Fate of Large Doses of Iron Administered by Mouth. J. F. Brock and D. Hunter.—p. 5.
Acromegaly and Creatine-Creatinine Metabolism. I. Schrire.—p. 17.
Observations on Agranulocytosis. M. C. G. Israëls and J. F. Wilkinson.—p. 35.
*Prognosis Following Recovery from Coronary Thrombosis, with Especial Reference to Influence of Hypertension and Cardiac Enlargement. J. H. Palmer.—p. 49.
The Heart in Emphysema. J. Parkinson and C. Hoyle.—p. 59.
Magnesium Content of Serum in Renal Insufficiency. R. W. Brookfield.—p. 87.

Prognosis Following Recovery from Coronary Thrombosis.—Palmer studied the prognosis, with special regard to the influence of hypertension and cardiac enlargement, in 212 patients who survived an attack of coronary thrombosis by three months. More than one fourth were able to lead fairly active lives. In the remainder, angina of effort and dyspnea on exertion were the most important symptoms causing restriction of activity or invalidism, and these were operative in almost equal proportion. The active group lived longer following the attack than the restricted. The onset and incidence of angina after coronary thrombosis were not related to the height or changes in the height of the blood pressure or to the size of the heart. Angina of every grade of severity, including that compatible with a fairly active life, occurred in 39 per cent of the cases prior to the attack and in 58 per cent following it. The presence of subsequent angina did not affect the average duration of life. The incidence of dyspnea severe enough to cause restriction of activity followed closely the inci-

dence of cardiac enlargement. Congestive failure, which affected 13 per cent of the series, was found only in patients with enlarged hearts. Subsequent attacks of coronary thrombosis occurred in 28 per cent, about half of them during the first two years. The incidence of these attacks was unrelated to the height of the blood pressure but was somewhat higher in cases with enlargement than in those with hearts of normal size. About one fifth of these subsequent attacks were fatal. The duration of life following the attack averaged 4.2 years in sixty-five patients known to have died. Patients with hypertension appeared to have a somewhat more favorable outlook in this regard than those not affected similarly. The groups with cardiac enlargement and with congestive failure showed a slight reduction in the duration of life. Short summaries are given of the histories of eleven patients known to have lived for more than ten years following the attack. Blood pressure changes and the height of the blood pressure following recovery from an attack of coronary thrombosis are on the whole of little significance. The probability that following recovery from an attack of coronary thrombosis a patient will be able to lead a fairly active life is almost twice as great in those with normal sized hearts as in those with cardiac enlargement.

South African Medical Journal, Cape Town

11: 39-70 (Jan. 23) 1937

*Diseases Transferable to Man from Domestic Animals. P. R. B. Smith.—p. 43.

The Patient with a Lump in the Breast. P. J. Vivier.—p. 47.
Luxation of Innominate Bone. S. V. Humphries.—p. 53.

Diseases Transferable to Man from Domestic Animals.—Smith limits his discussion to diseases of domestic animals which are transferable to man. In most of these (rabies, anthrax, glanders, malignant edema, Malta fever, trichophyton skin diseases, platyhelminth and trichinella infection, paratyphoid, foot and mouth disease, psittacosis and pox) the danger can be averted by the adoption of simple precautionary measures. In others this is impossible without the help of the health department, which, through prescribed laws, reduces the danger to man of animal diseases and their diseased products to a minimum. In order to safeguard public health, the authorities must insist on having qualified men at the head of all slaughterhouses. This holds equally true for dairies and for the control of dairy cows. Regular examination of these cows should be one of the chief functions of a qualified man. Any milk from cows suffering from mastitis, enteritis, metritis, tuberculosis, and the like, should be condemned. The author points out that in most European countries all the food products derived from animals are under the strict supervision of qualified men. In this country, however, the municipalities have not even begun to enforce this supervision. It is only by the cooperation of medical and veterinary science that the public can be educated to demand their rights in this direction.

Tubercle, London

18: 193-240 (Feb.) 1937

Mixed Infections with Human and Bovine Tubercle Bacilli in the Human Subject. A. S. Griffith.—p. 193.

*Comparison of Different Media for Growth of Tubercle Bacillus. Herta Schwabacher.—p. 199.

Some Remarks on Pulmonary Fibrosis in Miners. Croizier and E. Martin.—p. 206.

Insulin Treatment in Moderately and Far Advanced Cases of Pulmonary Tuberculosis. A. L. Banyai.—p. 210.

Comparison of Different Media for Growth of Tubercle Bacillus.—In ascertaining which was the simplest and most suitable medium for the enumeration of tubercle bacilli of the bovine or human type in tissue suspensions, Schwabacher found the highest proportion of colonies developed on a medium containing three parts of egg yolk and one part of saline solution, 5 per cent of glycerin being added for the human type. The replacement of saline solution by heart extract broth or liver extract was unfavorable. Experiments with egg white showed that this substance had no marked bactericidal action and that the failure of tubercle bacilli to grow in its presence was due to its high alkalinity. If this was neutralized, development of the bacilli occurred. The nutritive value, however, of neutral egg white was very much less than that of egg yolk. The addition of 10 per cent carbon

dioxide to the atmosphere in which the cultures were incubated was beneficial. The addition of 40 per cent oxygen had the opposite effect. For routine work a medium is recommended containing two parts of egg yolk to one of saline solution. If the medium is to be used for counting experiments in which discrete colonies are required, the proportion of yolk to saline solution should preferably be raised to 3:1.

Mémoires de l'Académie de Chirurgie, Paris

63: 215-266 (Feb. 24) 1937

Treatment of Acute Appendicitis. J. Vanverts and P. Minet.—p. 236.
Huge Lipoma of Transverse Mesocolon. I. Tanasesco.—p. 238.

Chronic and Protracted Staphylococcus Septicemia. M. Arnaud.—p. 240.
Femoral Embolus, Late Embolectomy, Arteriotomy, Death. Jeanneney and Darget.—p. 244.

*One Hundred and Thirty-Three Gastrectomies. J. Sénèque.—p. 247.

Gastrectomy.—In 133 gastrectomies, Sénèque applied the gastrojejunal anastomosis practiced by Hofmeister-Finsterer by closing the upper gastric opening, but following a different technic. After ligating the pyloric and gastroduodenal ends as well as the pertinent vessels, he first performs resection of the duodenum. The closing takes place in three planes. The stomach is then resected between the upper third and the lower two thirds. All residual contents of the gastric stump are emptied. Finally the upper gastric opening is closed, likewise in three planes, one total and two seromembranous. The stomach is fixed backward and forward to the submesocolic opening, linen thread being used during the entire procedure. A simple infrahepatic drain is left for forty-eight hours. Local anesthesia was used in most cases. The older patients withstood the operation much easier than the relatively younger. In ulcers of the lesser curvature the author chose gastrectomy in preference to gastro-enterostomy, owing to the dangers of hemorrhage, persistence of pain and the possibility of neoplastic transformation. Of thirty-three cases, thirty were cured. Five cases of pyloric ulcer and forty of duodenal ulcer were all cured. Improvements were observed in thirteen cases of multiple ulcers, two pyloric stenoses from myomas and one medio-gastric stenosis from attempted suicide with formaldehyde. In ten cases of second gastrectomies and new enterostomoses, necessitated by ulcers persisting after the operation, the old anastomoses which were fixed to the mesocolon had to be freed again: the duodenal closure was resected and the stomach was sundered from the duodenum, and the jejunum was sutured; a gastrojejunal anastomosis was made after the resection of the stomach, and the stomach was fixed to the mesocolon. One of the ten died from strangulation of the small intestine.

Revue Méd.-Chir. des Maladies du Foie, Paris

12: 1-64 (Jan.-Feb.) 1937

Hepatobiliary Symptomatology of Migraine. G. Parturier.—p. 5.

Hepatobiliary Symptomatology of Constipation. G. Parturier.—p. 25.

*The Upper Cervical Point in Painful Hepatobiliary Syndromes. G. Parturier and Singer.—p. 51.

Upper Cervical Point in Painful Hepatobiliary Syndromes.—In the diagnosis of organic disturbances of the stomach and duodenum, Cade demonstrated in 1919 that a painful point at the upper right side of the neck is indicative of organopathy in the upper regions of the abdomen, notably of the liver and bile ducts. A similar point at the upper left side of the neck denotes disorder of the stomach and duodenum. Parturier and Singer have verified this point in all their 125 cases of hepatobiliary syndrome. It may be detected at a level with the third cervical vertebra. Posteriorly it is at the lower edge of the spinous process of the axis. Anteriorly it corresponds to the angle of the mandible. It may be reached by the palpating finger moving toward the internal part of the tubercle of the transverse process of the third cervical vertebra and behind the parotid to the vasculonervous bundle of the neck. This bundle escapes the pressure of the finger, which finally compresses the upper cervical ganglion. The point is not easily detected in adipose or short necked persons and the patient will have to assume various postures. The differential diagnosis includes cervical arthritis, rheumatism, osteitis, retropharyngeal abscess, pain from lymph nodes derived from angina or tonsillitis and finally the syndrome of the carotid sinus. Stimulation of the zone through external compression diminishes the number

of the heart beats and lowers the arterial pressure. Thus the authors often had the experience that the patient lost consciousness as a result of pressure with the examining finger. Pains in that zone could likewise be provoked in some cases through pressure on a diseased gallbladder, which disappeared with the amelioration of the abdominal symptoms.

Schweizerische medizinische Wochenschrift, Basel

67: 221-240 (March 13) 1937. Partial Index

Treatment of Neurologic Syndrome of Pernicious Anemia. G. Bickel.—p. 221.

*Treatment of Anosmia with Insulin. J. Berberich.—p. 226.

Conjugal Tabes with Similar Clinical Symptoms. A. Jörmann.—p. 226.

Physiologic Sterility in Women. H. J. Gerster.—p. 228.

Cold Skin as Symptom of Some Rheumatic Disorders. W. Bachmann.—p. 231.

Treatment of Anosmia with Insulin.—Berberich says that heretofore only the respiratory forms of anosmia have yielded to treatment, because it can be causal in that polyps, tumors, sinus suppurations and conchal hyperplasias are removed. In the essential anosmias the treatment was mostly symptomatic, strychnine being most frequently used either by local, oral or parenteral application. It acts by way of increasing the central irritability. Several other physical and pharmacologic methods act by exerting a trophic influence on the olfactory mucous membrane. The author resorted to insulin in the treatment of essential anosmias. The treatment is begun by giving three times each week from 10 to 15 units of insulin. If necessary, this dose is increased to from 20 to 25 units. Of ten patients with essential anosmia nine were cured, and of three with partial hyposmia two were cured. In case of relapse, the same treatment was again effective. Recently the author has given small doses of iodine in addition to the insulin. In attempting to explain the mode of action of insulin, he points out that it increases the nervous irritability and also exerts a trophic influence on the mucous membrane. Moreover, insulin increases the water binding capacity of the tissues and promotes the secretion and the blood perfusion of the mucous membrane. The latter action is increased by the simultaneous administration of iodine. The author says that Spiess produced similar effects with insulin in dry catarrhs of the nose and pharynx.

Boll. d. Istit. Sieroterap. Milanese, Milan

16: 1-91 (Jan.-Feb.) 1937. Partial Index

Minimal Doses of Tubercle Bacilli in Normal and Tuberculized Guinea-Pigs: Superinfection. A. Guarna.—p. 1.

Amount of Diphtheria Antitoxin in Commercial Antiserums: Determination by Action on Diphtheric Toxins of Various Origin. A. Ugo.—p. 16.

*Induction of Local Immunity of Peritoneum with Vaccines in Preperitoneal Connective Tissue. I. Scalone.—p. 26.

Gold-Tubercle Bacilli Complex: Immunitary Reactions Induced. D. Barbieri and C. Benso Ballabio.—p. 45.

*Nasal Mucosa in Production of Diphtheria Immunity. A. Della Vedova J.—p. 80.

Induction of Local Immunity of Peritoneum.—Scalone administered injections of increasing doses of staphylococcus vaccine to rabbits. The injections were given in the preperitoneal connective tissue of the abdominal wall. The number of injections given to the animals in different lots varied from two to five. The animals were killed in good general condition at the end of the experiment. A gelatinous fluid was obtained from the peritoneal cavity in all cases. The amount of intraperitoneal fluid was not in relation to the number of injections given. The fluid has bactericidal action on staphylococcus but not on colon bacillus. The more or less intense bactericidal action was not in relation to the amount of intraperitoneal fluid but was in relation to the number of injections administered. The greater the amount of vaccine given to the animal, the more intense the bactericidal action of the fluid for staphylococcus. Because of the absence of phlogosis in the peritoneum and the lack of bactericidal action of the fluid on the colon bacillus, the author concludes that the vaccines produced local immunity of the peritoneum.

Nasal Mucosa in Diphtheria.—In his experiments on guinea-pigs, Vedova found that inoculation of diphtheria antitoxin in the nasal mucosa results in a condition of allergy to diphtheria which can be changed to immunity by stimulating the immunity processes. Immunity develops more easily from

subcutaneous inoculation than from nasal vaccination. Nasal inoculation results in simultaneous development of local and general immunity of the nasal mucosa and the skin, respectively.

Rivista di Patologia e Clin. Tuberculosis, Bologna

11: 85-160 (Feb. 28) 1937

Relations Between Infantile Scrofulosis and Tuberculosis, Especially According to Marfan's Views: Cases. G. Lenzi.—p. 85.

*Spleen Contracture from Epinephrine Injection in Splenomegaly in Tuberculosis. M. Bassi.—p. 95.

*Gastric Functions in Pulmonary Tuberculosis. G. Mazzuca.—p. 107.

Importance of Reduction of Pneumotometric Measures by Collapse Therapy. L. Menozzi.—p. 128.

Acute Global Aplastic Myelosis and Pulmonary Tuberculosis. A. M. Bonanno.—p. 134.

Spontaneous Parietal Pleurocele in Course of Artificial Pyopneumothorax: Case. G. Iurcev.—p. 138.

Spleen Contracture and Splenomegaly in Tuberculosis.

—Bassi performed the epinephrine test in fifteen cases of splenomegaly in pulmonary tuberculosis. Contracture of the spleen took place in all cases within five and ten minutes after administration of an intramuscular injection of 1 mg. of epinephrine and lasted for about two hours. The less intense results from the test were those obtained in chronic forms of pulmonary tuberculosis. According to the author vasal hypotonia, with consequent congestion of the spleen, and cellular hyperplasia of the splenic pulp are the main pathogenic factors of tuberculous splenomegaly. Splenic sclerosis is frequent in cases of chronic pulmonary tuberculosis.

Gastric Functions in Pulmonary Tuberculosis.—Mazzuca found hypochlorhydria, hypo-acidity and hyposecretion in twenty-four patients suffering from gastric disturbances in pulmonary tuberculosis. The disturbances of the gastric functions were verified both in grave and in benign forms of the disease. The patients were placed in three groups and given intramuscular injections every other day as follows: Patients in the first group were given fifteen injections of a pepsin and sodium benzoate solution. (The author does not mention the dosage.) Patients in the second group were given twenty injections of pure pepsin (0.06 Gm. each for the first ten injections and 0.1 Gm. each for the last ten). Patients in the last group were given ten injections of a mixture made up of 0.04 Gm. of tryptophan and 0.08 Gm. of histidine. As a result of the treatments the amount of hydrochloric acid and the total acidity and pepsins in the gastric secretion improve. The gastric secretion, however, was never normal and the improvement induced by the treatment was temporary. The author calls attention to the fact that the effects of the treatment in gastric disturbances in pulmonary tuberculosis are different from those obtained from the same treatment in gastroduodenal ulcer.

Medicina, Mexico City

17: 81-106 (Feb. 25) 1937

Poison of Scorpion Centruroides Limpidus-Limpidus Karsch. E. Cervera and G. Varela.—p. 81.

*Blood Transfusion in Treatment of Melena Neonatorum. J. F. Franco.—p. 84.

Onchocerciasis. G. Casis Sacre and F. Rico Bustamante.—p. 88.

Blood Transfusion in Treatment of Melena Neonatorum.—According to Franco, blood transfusion is indicated in genuine melena neonatorum. The procedure in new-born infants is not as difficult as it is believed when the injection is made in the internal saphenous vein with a blunt pointed needle. It is advisable to use pure blood because anticoagulants may cause shock. Blood from the father is administered. If it is not available, a relative of the infant may be the donor, if of the same blood group. The amount of blood administered varies between 30 and 45 cc. for the first injection. Transfusion is repeated after forty-eight hours in cases in which slight hemorrhage persists. No further treatment is necessary. In the four cases reported by the author, the infants were at full term. All treatments that are advised for controlling melena neonatorum failed. The patients were in extremely grave condition from the frequency and abundance of the hemorrhages and blood vomiting. There was intense pallor, hypothermia, weak pulse and cardiac beats and superficial respiration in all cases. Hemorrhages and blood vomiting were rapidly and permanently controlled with consequent recovery of the patients. The age of the patients now varies between 2 months and 2 years. The infants are all normal.

Semana Médica, Buenos Aires

44: 473-552 (Feb. 18) 1937. Partial Index

- Congenital Pseudo-Arthrosis. M. Viñas and L. T. Rivara.—p. 473.
*Congestive Primary Splenomegaly. L. Gravano.—p. 488.
Recovery of Function of Kidney After Elimination of Ureteral Calculus: Case. H. D. Berri, E. B. Bottini and H. Torres.—p. 509.
Large Calculus of Submaxillary Gland: Case. E. S. Mealla.—p. 525.
Kinetic Treatment of Gonococcal Arthritis of Knee Joint. L. Dubin.—p. 541.

Congestive Primary Splenomegaly.—According to Gravano, congestive primary splenomegaly is a chronic disease of slow evolution. It originates in disturbances of a venous system involving the portal and splenic veins (diffuse intraperiphlebitic form) or the splenic veins (cryptogenic form). The etiology of the former type is toxic or infectious, especially syphilis of the portal veins. That of the latter is unknown. The clinical latency of the disease is frequently interrupted by the production of gastro-intestinal hemorrhages, with consequent progressive anemia, and also ascites and fever. In certain cases the first attack is grave: The gastro-intestinal hemorrhages are severe and frequently repeated and there is intense anemia and ascites or rapid reproduction of ascites. The diagnosis is made by the clinical symptoms, the special type of splenomegaly and the intense positive results of the x-ray proof of the contraction of the spleen provoked by the injection of epinephrine. The prognosis of the disease is grave. It depends on the frequency and intensity of the gastro-intestinal hemorrhages, the intensity of the anemia and the degree of involvement of the liver in the pathologic process. The treatment varies with the form (cryptogenic or intraperiphlebitic) of the disease. In the cryptogenic form, splenectomy is indicated. It prevents further gastro-intestinal hemorrhages and controls anemia and further development of intraphlebitis of the portal and splenic veins. Splenectomy is contraindicated in the diffuse form of intraperiphlebitic congestive primary splenomegaly in which the pathologic process of the veins is due to an infection or intoxication. Medical treatment for controlling the infection or intoxication which exists in the given case is indicated. Two cases are reported by the author.

Beiträge zur klinischen Chirurgie, Berlin

165: 1-176 (Jan. 29) 1937. Partial Index

- Esophageal Diverticulum of Unusual Form and Location (Necessitating a Posterior Mediastinotomy). F. Oehlecker.—p. 1.
*Tumors of Salivary Glands. H. L. van Vierssen Trip.—p. 17.
Unfamiliar Anaerobic Infections. J. Zeissler.—p. 48.
Id.: W. Stoeckenius.—p. 52.
Technic of Brain Tumor Operations. D. Kulenkampff.—p. 69.
*Symptoms and Pathology of Synovioma. A. Fehr.—p. 88.

Tumors of Salivary Glands.—Histologic studies of sixty-two cases of neoplasms of the salivary glands, treated in the last twenty-five years in the Surgical Clinic of the University of Groningen, when compared with the clinical histories, convinced van Vierssen Trip that the clinical course of any given case, particularly with regard to the question of malignancy or benignancy, cannot be predicated on the histologic evidence alone. Not infrequently parotid tumors exhibit only one sign of malignancy, such as recurrence after removal. Recurrence is a common characteristic of the mixed tumors. One likewise observes tumors which do not break through the capsule and do not recur after removal, and occasionally one sees tumors which do not recur despite the fact that they presented the picture of an infiltrating growth. The behavior of a so-called benign salivary gland tumor cannot be predicted until a number of years after the operation. Mixed tumors presenting a simple histologic picture run a mild course. There was only one fatal outcome in the twenty-three cases of that type. Mixed tumors of a complicated histologic type, on the other hand, are much more malignant. In a group of twenty-three cases of that type, one proved fatal after a rapidly malignant course and two after a somewhat more prolonged course. Cylindromas were rare and their prognosis is dubious. A mixed tumor that runs a rapidly malignant course may be classed as carcinoma. Carcinomas of the parotid gland are epithelial tumors of manifest malignity. The borderline between a mixed tumor and a carcinoma is indefinite and varies with the observer's point of view. When the character of the mixed tumor is predominantly sarcomatous, the tumor may be designated as sarcoma. Three benign tumors were observed: a fibroma and two neurinomas.

Synovioma.—Fehr reports four cases of synovioma observed in Clairmont's clinic (Zurich) and reviews nineteen cases from the literature. The tumor originates in the synovial tissue of the joint capsule, tendon sheath or bursa. It is sarcomatous in nature and is characterized by slow growth. The most common localization is the knee joint. Despite its slow growth the tumor is definitely malignant, recurs after the widest excision and, without exception, causes death by metastasizing in the lungs. The tumor cells are resistant to the roentgen rays. Early amputation is indicated. Microscopic examination alone can establish the diagnosis. Characteristic sections present cavities lined with epithelioid cells. In the later stages and particularly in the recurrences and in metastases one finds ordinary sarcomatous spindle cells of which the origin from the synovial tissue is no longer recognizable.

Klinische Wochenschrift, Berlin

16: 217-256 (Feb. 13) 1937. Partial Index

- *Color Reaction of Cevitamic Acid. S. Dietrich and G. Hundhausen.—p. 222.
Studies on Pathogenesis of Diphtheria. K. W. Clauberg and K. Plenge.—p. 223.
Value of Dry Blood Reaction According to Chediak for Serodiagnosis of Syphilis. G. Böhme.—p. 225.
*Vitamin B₁ and Carbohydrate Metabolism. R. Tislowitz.—p. 226.
Significance of Reflex Irritability of Vagus in Angina Pectoris. P. Radnai and L. Mosonyi.—p. 228.
Some Factors to Be Considered in Developing Methods for Internal Treatment of Cancer. M. Reiss.—p. 231.

Color Reaction of Cevitamic Acid.—Dietrich and Hundhausen point out that Risak observed that after exposure to sunlight melanogen is eliminated in the urine. However, Risak's observation could not be corroborated by others and the authors found that the urine of patients who had been treated with large quantities of cevitamic acid produced the same blue coloration that is observed during the elimination of melanogen. Further investigations proved that this reaction is no more specific for cevitamic acid than for pyrrole and indole bodies. It is elicited by many substances that effect reduction. Low values detected with methods of titration cannot be ascribed to vitamin C, but only higher values that appear after tolerance tests. A tolerance test method has been devised for the detection of a vitamin C deficit. The size of the deficit is expressed by the number of days the tolerance test has to be continued until this elimination has been reached. The authors employed the continuous vitamin C tolerance test in ten cases and compared the titrimetric determination in the urine with the outcome of the blue test. The test is made like Legal's test for acetone with sodium nitroprusside, sodium hydroxide and glacial acetic acid. The authors advise against a too concentrated sodium nitroprusside solution and suggest a hot saturated solution diluted to one third. The sodium hydroxide should be added drop by drop until a red color appears, which is due to creatinine. Then the glacial acetic acid is added in drops until a blue or a bluish green coloration appears. The blue is the more intense, the higher is the cevitamic acid concentration. In case of low concentration it disappears rapidly, particularly if too much acid is added. A tolerance test of eight days' duration failed to produce a positive blue test in only two of the ten patients. They were patients with severe exophthalmic goiter. In these patients the titration method likewise revealed no noticeable increase in the reduction capacity of the urine. They express the opinion that a greater intake of cevitamic acid might explain Risak's observation.

Vitamin B₁ and Carbohydrate Metabolism.—Tislowitz found that the parenteral administration of vitamin B₁ reduces the fasting blood sugar of normal rabbits and dogs and that the hyperglycemia of dogs after dextrose tolerance tests is likewise reduced following the administration of this vitamin. Moreover, the insulin hypoglycemia of normal dogs is greater in the animals that have been given vitamin B₁ than in the controls. It is assumed that vitamin B₁ has a point of attack either in the hypophysis or in the central nervous system. After pointing out that an insulin activating effect of vitamin B₁ has been assumed by others, the author suggests that the favorable action of certain vegetable diets on diabetes mellitus might, among other factors, be due to the content in certain vitamins. He thinks that in case of abuse of alcohol, particularly in delirium

tremens, vitamin B₁ might be helpful. Finally he suggests that by making slight changes in the structural formula of vitamin B₁ it may be possible to develop an antidiabetic remedy that is suitable for oral administration.

Monatsschrift für Kinderheilkunde, Berlin

69:1-342 (Feb. 18) 1937. Partial Index

- Aspects of Marble Bone Disease: Familial, Benign Type of Diffuse Osteosclerosis. G. O. Harnapp.—p. 1.
Connection Between Rickets and Backwardness. T. Brander.—p. 47.
Connection Between Enlarged Tonsils and Backwardness. T. Brander.—p. 57.
Problem of Impairment of Facial Nerve During Diphtheria. H. Rave.—p. 73.
*Carcinoma of Hypophysis in Boy, Aged 9 Years. E. Wentzler.—p. 86.
Types of Bacilli and Clinical Aspects in Diphtheria. W. Becker.—p. 95.
*Protection Against Measles by Placental Extract. Ursula Moeller.—p. 101.

Carcinoma of Hypophysis in Boy.—Wentzler reports the clinical history of a boy, aged 9 years, in whom diabetes insipidus became manifest at the age of 5. The symptoms increased in severity, although there were occasional temporary improvements as the result of therapeutic measures. The boy died at the age of 9 and the necropsy revealed a carcinoma of the hypophysis with complete destruction of the posterior lobe and of the tuber cinereum. The anterior lobe of the hypophysis was normal, but the intermediate part of the hypophysis likewise exhibited considerable changes.

Protection Against Measles by Placental Extract.—Moeller reviews the history of the prophylactic value of placental extract in measles and then describes her own experiences with this type of prophylaxis in ninety-one children. In forty-four children between the ages of 3 months and 5 years, from 3 to 20 cc. of placental extract was injected between the fifth and the seventh day of incubation. Of these, only 20 per cent remained free from measles. Forty-seven children in another group were treated with from 10 to 15 cc. of placental extract on the second day of incubation and 97 per cent remained free from measles. The author thinks that, if correctly applied, placental extract provides an effective protection against measles. Placental extract is always available and, in case of early administration, it provides as much protection as convalescent serum and more than blood from adults. It represents a considerable advance in the prophylaxis of measles.

Strahlentherapie, Berlin

58:193-372 (Feb. 17) 1937. Partial Index

- *Roentgen Impairment of Parotid Gland. H.-H. Hermann.—p. 220.
Cure of Traumatic Aneurysm by Means of Radium Irradiation. L. Valach.—p. 230.
Cure of Woman with Abdominal Actinomycosis by Fractionated Roentgen Irradiation. C. Weysser.—p. 234.
Roentgen Irradiation of Ovaries. G. H. Schneider.—p. 238.
Experiences with Borderline Ray Therapy of Lupus Vulgaris. A. Beller.—p. 244.
*Rational Roentgenotherapy of Acute Nonsuppurating Inflammations of Spinal Cord. P. Del Buono.—p. 251.

Roentgen Impairment of Parotid Gland.—In a patient who had received roentgen treatment on account of a carcinoma of the hypopharynx, Hermann observed at necropsy that the parotid gland on the irradiated side showed changes that were much more severe than those on the nonirradiated side. The questions arose whether the severe lipomatous degeneration of the parotid gland, particularly on the irradiated side, could have been caused by the roentgen irradiation, whether intensive irradiations of the side of the face would always cause an impairment of the salivary glands, and what differences regarding impairment exist between fractional irradiation without protraction and protracted fractional irradiation of the parotid gland. The author decided to investigate these problems in experiments on rabbits. On the whole, he gained the impression that the ray sensitivity of the parotid gland is slight in comparison to that of other organs. He believes that roentgen irradiation does not play any part in the lipomatous degeneration of the parotid gland and states that the impairments, which become manifest during the irradiations in the form of dryness of the mouth, painful swelling and facial edema, are only temporary, not permanent. To the third question no final answer is possible as yet, because, with few exceptions, there seems to be no difference between the results of the two modes of

irradiation. Accordingly, the author thinks that for economic reasons the merely fractional irradiation should be employed. Moreover, some of his own experiments indicate that fractional irradiation without protraction is less likely to cause changes than protracted fractional irradiation.

Roentgenotherapy of Inflammations of Spinal Cord.—Del Buono discusses roentgenotherapy in acute anterior poliomyelitis of children, in acute and chronic poliomyelitis of adults and in acute and chronic multiple sclerosis. He reaches the conclusion that roentgenotherapy is advisable in nonsuppurating, acute, inflammatory disorders of the spinal cord, because it produces better results than do other methods. The best results are obtained in acute anterior poliomyelitis of children, provided the treatment is begun early; that is, before the anatomic lesions of the spinal cord have become extensive. Favorable and lasting effects can be produced also in adults who have anterior poliomyelitis, acute multiple sclerosis or radiculomyelitis, but in these conditions also early beginning of the treatment is essential. In chronic multiple sclerosis, the effect of roentgenotherapy is slight. The improvement that may be noticeable after the first series of irradiations is not lasting and, after it disappears, the disease process advances unchecked. The technic of the irradiation is of minor importance, for favorable results have been obtained with various technics.

Zeitschrift f. Geburtshilfe u. Gynäkologie, Stuttgart

114:125-236 (Feb. 9) 1937

- *Clarification of Histogenesis of Brenner's Ovarian Tumors. H. O. Kleine.—p. 125.
Psammocarcinoma of Ovary. E. Werner.—p. 140.
*Cholin Esterase Content of Maternal Blood and of Blood of Umbilical Cord. E. Navratil.—p. 146.
Pathogenicity of Trichomonas Vaginalis. K. Streit.—p. 154.
Fetus Without Arms and Legs (Amelia): Summary of Observations on Amelia. G. Ilberg.—p. 174.
Forms and Genesis of Arhinencephalia and Cyclopia and Significance of Coupled Deformities. E. Redenz.—p. 185.

Histogenesis of Brenner's Ovarian Tumors.—Kleine sees the clinical significance of Brenner tumors in the fact that in spite of their "carcinoid" appearance they are always benign and that they are frequently mistaken for cancerous growths, particularly granulosa blastomas. He thinks that among the "cured" cases in the statistics on ovarian cancers there are probably many in which the so-called cancer had been a Brenner tumor. He emphasizes that Brenner tumors can be identified only histologically, not clinically. He differentiates two types: (1) solid Brenner tumors with and without the formation of microcysts and (2) Brenner tumors that are in the wall of large serous, but especially pseudomucinous, ovarian cystomas. Histologic examination reveals them as small complexes of tumor cells, frequently with irregular outlines, consisting of epithelium with round and spindle shaped nuclei. Generally the epithelium is undifferentiated, but it may be differentiated in pavement epithelium, serous epithelium and particularly mucous epithelium. The latter gives positive results when stained with mucicarmine and encloses microcysts in such a manner that the nuclei of the cylinder cells lining the cavity are on the side away from the lumen. This is an important differentiating characteristic from many folliculoid granulosa blastomas, in which the nuclei of the cell lining the cavity are turned toward the lumen. The author reports observations on five patients with Brenner tumors. In three cases the Brenner tumors concurred with pseudomucin cystomas, in one with serous cystoma and in the fifth with an epophoron cyst. In the latter case, two islands of Brenner epithelium, which could be recognized only microscopically, were found where the hilus passes into the mesosalpinx. The author also states that the histologic examination of 166 ovarian teratomas never revealed the presence of nests of Brenner epithelium. There are three possibilities for the histogenesis of Brenner epithelium: (1) from the surface epithelium of the ovary, (2) from the peritoneal epithelium (tubes and ligaments) and (3) from Wolff's epithelium (hilus). These modes of histogenesis explain the development of Brenner tumors near the ovarian surface and in the region of the hilus of the ovary; also the concurrence of Brenner tumors with pseudomucin cystomas or serous cystomas and the occurrence of so-called Werth's epithelial nodules in the tubes and in the broad uterine ligament.

Cholin Esterase Content of Blood of Umbilical Cord.

—Navratil points out that it has been proved that cholin esterase takes a special position among the esterases. Because this ferment regulates the formation as well as the cleavage of the acetylcholin that occurs in the tissues, it may be assumed that the significance of this ferment is closely connected with that of the highly active substrate. Since cholin esterase was first demonstrated in the cardiac muscle by Loewi and Navratil, a number of other investigators have studied its occurrence in the tissues and the blood. The author cites several methods by which the cholin esterase content can be determined and then reports his own studies. Immediately after the birth of the child, blood is withdrawn from the maternal arm vein and from the still pulsating umbilical cord. It was found that the maternal whole blood as well as its serum has a greater cholin esterase content than the umbilical blood and serum. The author admits that the process of delivery might have caused changes and thinks that control tests should be made before delivery or at its onset; that is, in the course of cesarean operations.

Wiener klinische Wochenschrift, Vienna

50: 275-362 (March 5) 1937. Partial Index

Psychotic Symptoms After Roentgen Irradiations of Cerebral Tumors. L. Benedek.—p. 278.

Energy Metabolism in Exophthalmic Goiter. H. Eppinger.—p. 289.

Simple Atrophy of Optic Nerve in Neurofibromatosis (Recklinghausen). A. Fuchs.—p. 291.

Efficacy of Iodized Salt in Prophylaxis of Goiter. V. Gegenbauer and K. Gottlieb.—p. 292.

*Newly Discovered Cerebropathologic Phenomenon. J. Gerstmann.—p. 294.

Question of Influence of Psychopathic Conditions in Crimes. K. Grosz.—p. 297.

Rôle of Hypophysis and of Hypothalamus in Diabetes Insipidus. O. Hirsch.—p. 299.

New Cerebropathologic Phenomenon.—Gerstmann describes a cerebral phenomenon that he observed in a woman, aged 33. The patient had headaches in the right upper parietal region, which area was also sensitive to pressure and percussion. Occasionally there were jacksonian attacks involving the contralateral (left) side of the body. These and other symptoms as well as the cephalographic observations and the course of the disease indicate a pathologic process in the retrocentral region of the cortex of the right cerebral hemisphere, chiefly the right upper parietal region. The extremely slow course suggests a benign tumor. The phenomenon to which the author wishes to call attention is the following: If black or colored glasses that are impervious to light are placed before the woman's open eyes and she is told to look in front of her without directing her eyes in any other direction, there develop rhythmic automatic movements in the anteroposterior direction. These movements cannot be voluntarily altered or suppressed by the woman. If she is standing, they involve the entire body; if she is sitting, only the trunk and head and, if the trunk is fixed, only the head. As soon as the patient closes her eyes, the movements cease, but, if she opens them again behind the impervious glasses, the movements reappear. The patient experiences the movements in the anterior direction as a forward traction that cannot be resisted; the backward movements the patient is unable to explain. Passive turning of the head in the direction contralateral to the cerebral focus intensifies the rhythmic oscillating movements and the patient utters an anxious cry in response to the intense sensation of falling toward the left. Passive movement of the head in the direction homolateral to the focus (that is, toward the right side) does not intensify the movements. Passive forward bending of the head and fixation in this position likewise intensify the rhythmic anteroposterior movements. Active movements of the head have similar effects. The body movements are accompanied by eye movements, but the latter take the opposite direction. Further studies proved that the movements can be elicited by placing before the eyes any uniformly colored (except white or gray) surface. However, as soon as fixation is effected by a definite outline or even by the prick of a pin in the otherwise uniform surface, the rhythmic body movements cease. Thus the movement phenomenon is elicited only if the eyes are open and fixation is impossible. This phenomenon gives rise to a number of questions that remain unexplained.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

81: 857-988 (Feb. 27) 1937. Partial Index

*Gold Poisoning, Basophil Granulation and Eosinophilia. D. L. Hulst.—p. 868.

Treatment of Metasyphilis in the Tropics. A. J. G. Belinfante.—p. 876.

Studies on Gas Metabolism in Children. M. De Bruin.—p. 884.

*Disturbances in Cardiac Rhythm in Tumors of Lung. P. Formijne and P. J. Zuidema.—p. 891.

Gold Poisoning, Basophil Granulation and Eosinophilia.

—Hulst says that from May 1935 to May 1936 all patients with primary chronic polyarthritis who came to the Leiden clinic for rheumatic disorders were treated with intragluteal injections of a gold preparation. This gave him an opportunity to observe various forms of gold poisoning. The differences in the development and the occasionally rather sudden onset induced him to search for an objective sign that would indicate the approach of an intoxication. Since the literature contained reports about basophilic granulation of the erythrocytes after gold treatment, he investigated this manifestation. Of the fifty-one patients who had been treated with the gold preparation, only two never had the basophilic granulation of the erythrocytes. Of the forty-one who were examined before the gold injections were given, seven were found to have the basophilic granulation. Of the thirty-four patients who did not have the basophilic granulation, thirty-two developed it after the gold treatment had been continued for a shorter or longer period. The basophilic granulation formerly was regarded as a sign of degeneration, but recent observations seem to indicate that it is a regenerative process. The author cites instances in which chronic rheumatism occurred in patients who also had hypochromic anemia. The anemia proved refractory to iron and various other treatments but improved in the course of the gold therapy. The author gained the impression that the gold stimulates blood formation and causes the development of the basophilic granulation. He discusses the connection between gold therapy and eosinophilia. Many cases of gold poisoning were accompanied or preceded by an increase in the number of eosinophilic leukocytes. This increase subsides again as the signs of intoxication disappear. If eosinophilia appears in the course of gold therapy, it is advisable to interrupt the gold therapy until all signs of intoxication and the eosinophilia have disappeared.

Disturbances in Cardiac Rhythm in Tumors of Lung.

Formijne and Zuidema report the histories of nine patients with pulmonary carcinoma in whom they observed disturbances in the cardiac rhythm. The arrhythmias were all of the paroxysmal type. Fibrillation appears to be the most important of these disturbances of the cardiac rhythm. The authors observed it in four of their patients. In one patient cardiac flutter was observed and in another tachysystole. In the remaining three cases the character of the arrhythmia could not be definitely identified. In order to give information about the frequency of paroxysmal arrhythmia in patients with pulmonary tumors, the authors point out that, during the period in which they observed the nine pulmonary tumors with paroxysmal arrhythmia, they found thirty-three pulmonary tumors without it. They think that the paroxysmal development of the fibrillation and flutter may be regarded as characteristic for pulmonary tumors. In most of the cases the necropsy revealed that the neoplasm had invaded the pericardium or the musculature of the auricles.

Finska Läkaresällskapets Handlingar, Helsingfors

80: 1-96 (Jan.) 1937

Considerations on Hygienic Conditions in Breweries and Soft Drink Factories in Finland. C. Nyberg.—p. 25.

*Causes of Death Among Diabetic Patients. B. von Bonsdorff.—p. 33.

*Anemia and Dysphagia or Plummer-Vinson's Syndrome. C. Schlauman.—p. 61.

Familial Congenital Fistula of Ear: Case. S. Söderlund.—p. 71.

Occurrence of Subcutaneous Lymph Nodes in Angle of Jaw and Anterior Jugular Vein in Domestic Cat. N. Westerholm and E. Lindholm.—p. 79.

Causes of Death Among Diabetic Patients.—Von Bonsdorff says that, from 1930 to 1936, 308 diabetic patients (117 men, 191 women) were treated in the Maria Hospital in Helsingfors, most of them several times; 110 were less than

50 years of age and 198 were more than 50. Of these, 120 have died, at an average age of 56.5 years; 50.8 per cent from arteriosclerotic cardiopathies and cerebral circulatory disturbances together with gangrene in the lower extremities, 15.8 per cent from infectious diseases, 14.3 per cent from diabetic coma, 10 per cent from tuberculosis and 5.8 per cent from malignant tumors. At least sixty-five cases of coma (in forty-five patients) were treated; of the seventeen deaths in this group, some might have been prevented if the cases had not been admitted too late because of mistaken diagnosis.

Anemia and Dysphagia or Plummer-Vinson's Syndrome.—Schauman reports three typical cases of the disease. A fourth case presented the characteristic clinical picture of Plummer-Vinson's syndrome and no signs of cancer, but the patient's death five months after discharge was perhaps due to cancer of the stomach. The possibility of a connection between the Plummer-Vinson syndrome and the cancer is discussed.

Hospitaltidende, Copenhagen

SO: 85-112 (Jan. 26) 1937

Creatine-Creatinine Metabolism in Patients with Progressive Muscular Dystrophy After Treatment with Aminoacetic Acid. T. Espersen and A. Thomsen.—p. 85.

*Histology of Neurinomas. H. Lindenov.—p. 102.

Calcifications in Veins. A. Eldahl.—p. 108.

Histology of Neurinomas.—Lindenov says that in his case of intraperitoneal neurinoma in a man, aged 45, an accidental observation at necropsy, the reticular parts of the tissue containing nuclei resembled the form of neurinoma tissue described by Antoni as type B, and the diagnosis was further supported by the content of colloid masses. While the capsule and the neurinomatous tissue were not clearly separate, the former appeared so definitely as a capsule that the fibrous tissue was regarded as drawn into the proliferation and not as a constituent of the tumor, which is ascribed to germs broken off in fetal life from some preliminary stage of the splenic plexus.

SO: 113-140 (Feb. 2) 1937

*Formol-Gel Reaction and Other Globulin Reactions. J. Bing.—p. 113. Neurocomplications in Epidemic Parotitis: Latent Parotidian Meningitis. K. G. Fuhrmann.—p. 128.

Cevitamic Acid and Its Keeping Qualities in Aqueous Solution with Presence of Sodium Chloride: Preliminary Report. F. Westergaard. p. 134.

Formol-Gel Reaction and Other Globulin Reactions.—Bing performs the formol-gel reaction by adding two drops of solution of formaldehyde to 1 cc. of serum allowed to stand at laboratory temperature for three hours. He finds the test positive in disturbances with considerable hyperglobulinemia, in Denmark primarily occurring in cases of multiple myelomas or chronic infectious disease. In his material it was positive in fourteen cases of myeloma, in several peculiar cases of sepsis lenta, and in some instances of specific infections and hepatic disorders. There were rapidly positive formol-gel reaction and considerable hyperglobulinemia with resulting hyperproteinemia in one case of lymphatic leukemia and one of Schönlein-Henoch's purpura, diseases in which these changes had not previously been found. In 3,697 Danish serums only about 2 per cent gave a positive reaction. Other globulin reactions are briefly described.

SO: 141-168 (Feb. 9) 1937

*Investigations on Variations in Permeability of Red Blood Corpuscles in Man, with Especial Regard to Relations in Pernicious Anemia. O. Bang and S. L. Ørskov.—p. 141.

Macrocytic Anemia in Cancer of Pylorus and Laënnec's Hepatic Cirrhosis: Case. Helga Bentzen.—p. 157.

*Contribution to Question of Heredity in Congenital Stenosis of Pylorus. B. Fabricius and P. Vogt-Møller.—p. 166.

Variations in Permeability of Red Blood Corpuscles.—Bang and Ørskov express the permeability of the red blood corpuscles to dextrose by the minute constant computed according to Pick's law. They state that increase of the dextrose concentration in the suspension fluid from 0.58 per cent to 1.16 per cent reduces the permeability two and one-half times. Their tests were carried out after the blood had been allowed to stand for four hours or more. In twelve normal persons the average minute constant was 0.27. This was also the

average value in nine cases of anemia due to hemorrhage, the maximum being 0.39, but in four cases of untreated pernicious anemia the minute constant varied from 0.42 to 1.14 and the highest and the lowest values occurred in cases with about the same degree of anemia. In two out of six other cases of pernicious anemia tested some time after the start of treatment the minute constant was normal; in four it varied from 0.46 to 0.81; here also there was no clear parallel between the degree of anemia and the permeability. During treatment, normal values were attained while the anemia was still marked. Investigations in patients with other disturbances revealed a minute constant under 0.40, and usually normal, in most cases. Normal values seen in two cases of leukemia are considered especially interesting. In a case of extensive osteitis deformans and in one of diabetes the minute constant was more than 0.40. Tests of the permeability to malonamid and tiourin substance gave results similar to those with dextrose. The permeability to glycerin was normal in pernicious anemia and not affected by specific treatment.

Heredity in Congenital Stenosis of Pylorus.—Fabricius and Vogt-Møller state that, while congenital pyloric stenosis is mentioned in the literature as a familial disorder, apparently no cases have been reported corresponding to the four reported by them in siblings who are a mother's entire family but the oldest of whom is the half sister of the other three.

SO: 169-196 (Feb. 16) 1937

*Treatment of Encephalitis. P. Levison.—p. 169.

*Posttraumatic Arteriospasm in Fingers. O. Mikkelsen.—p. 177.

Experimental Investigations on Gastrogenic Anemias and Accompanying Changes in Avitaminosis: VII. On Changes Observed in Swine After Extirpation of Stomach. S. Petri, D. Bøggild, A. Sjøberg-Ohlén and O. Wanscher.—p. 185.

Hematuria After Tonsillectomy and Adenotomy. H. Rasmussen.—p. 191.

Treatment of Encephalitis.—Levison says that he has attained good results in chronic epidemic encephalitis and other chronic infectious diseases of the central nervous system of unknown cause, also in multiple sclerosis by a combination of arsenic and bismuth preparations which, although not really specific, he terms "specific treatment," together with omnadin (or omnol), perhaps metallosal, and diaphoretic treatment. For relief of symptoms the usual agents have been employed—phenylethylbarbituric acid, scopolamine, atropine, coniine and so on, and finally orthopedic and in rare cases surgical treatment. The treatment is protracted and to be continued after the symptoms have disappeared. In his opinion an unfavorable prognosis is often assigned to chronic epidemic encephalitis because of the grave, rigid and parkinsonian cases, which however are not numerous. On admission of 122 cases grave parkinsonism was found in two, moderately grave in five and mild in two; i. e., in 5.7 per cent. The many mild cases, also those with slight parkinsonian syndrome, the neurasthenia-like forms and even the marked hyperkinetic forms may have an excellent prognosis.

Posttraumatic Arteriospasm in Fingers.—Mikkelsen asserts that in a number of cases diagnosed as traumatic neuroses there is in reality a posttraumatic arteriospasm or other disorder in the sympathetic nervous system. In arteriospasm the predominating subjective symptoms are sensation of cold and pain from cold; there are also pain on movement, hypalgesia and trophic disturbances. With arteriospasm limited to one finger he is reluctant to undertake extirpation of the third cervical ganglion and for the last year and a half has treated such arteriospasm conservatively by bandaging the finger for a long time. Complete recovery occurred in the six patients treated with finger splints and arm slings for from two weeks to three months. Two patients with arteriospasm in the whole hand after a Colles fracture were also successfully treated by bandaging. The hyperalgesic form, with paresthesias, appears only in the fingers and only after grave lesions. Half a year ago the author began to inject 1 per cent procaine hydrochloride-epinephrine in the finger or finger stump. Fourteen patients have now been treated by this method, with complete recovery in eight, almost complete recovery in five and no change in one. He emphasizes that the injection, which is painful, must be made in the tender part of the finger or finger stump and in the entire cyanotic field.

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THE PROBLEM OF TUBERCULOSIS

FROM THE GENERAL PRACTITIONER'S
POINT OF VIEW

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SECAUCUS, N. J.

The subject of tuberculosis, more specifically pulmonary tuberculosis, is talked and written about so often these days that one feels apologetic when adding another paper to the already voluminous literature. Yet there are certain features of the subject of special interest to the general practitioner that require emphasis and other points of importance to all interested in preventing the more or less permanently damaging and disabling phases of the disease that call for reevaluation. In addition, I shall attempt to outline a workable program in which all physicians can and should partake and that embraces methods by which it may be hoped in the next several generations not only to reduce the morbidity very appreciably from its present level but also to give the profession just reason to feel that such reduction might be directly linked with its efforts.

In the desire to emphasize the necessity and importance of the public health activities of both lay and medical organizations especially interested in the problems of tuberculosis, one not infrequently leaves a misleading impression with the public and the general practitioner as to the real situation. Thus every one is familiar with the figures often repeated showing the remarkable reduction in the death rate from tuberculosis in the past quarter of a century and with the comparative figures indicating that tuberculosis now has taken seventh place as a general cause of death. While the reduction in the number of frank clinical cases of tuberculosis is less often mentioned, it is a fact, nevertheless, that the decline in the morbidity rate has kept pace with the reduction in mortality.¹ What fails to be stressed or perhaps, I should rather say, is not kept foremost before the public and the medical profession is the fact that between the ages of 15 and 35 tuberculosis accounts for more deaths in the general population than does any other disease, and that at least 500,000, if not more, individuals are known to have clinical tuberculosis. This is the real problem; and it is a serious one, especially when it is remembered that hospital beds are available for only about 15 to 20 per cent of those afflicted. From the last statement it is obvious that there are an ever present large number of carriers who serve to plant the seeds for a new generation of tuberculous individuals.

Now how shall this situation be coped with? The lack of specific immunizing or therapeutic agents, the

peculiar development of the primary infection and its almost universal occurrence as adult age is approached, the effect of the first infection on subsequent superinfections and the clinical behavior of a second or adult infection make the problem of attack on this disease wholly different in most respects from that encountered in other contagious diseases, such as diphtheria and scarlet fever.

From a knowledge of the biologic characteristics of the tubercle bacillus and the pathogenesis of tuberculosis it is obvious that accidental infections cannot entirely be avoided. In spite of all activities for the prevention of infections, at least 40 to 60 per cent of the population show evidence of its presence when maturity is reached. Even if these accidental infections were preventable it is debatable whether it would be advisable to undertake such a course in view of the concept held by the majority of workers that the immunity which results exerts a favorable influence on subsequent superinfections.

Segregation of carriers remains the only measure of approach common to all contagious diseases. But even here there is a double limitation. In the first place, as has been already stated, hospitalization is available for only 15 to 20 per cent of those afflicted. In the second place, because of the chronicity of the disease, isolation is often impracticable. On the other hand there is unquestionable evidence indicating that in an appreciable number of adults with clinical tuberculosis a history of contact, usually of continuous and prolonged type, is obtained.

Table 1 is self explanatory but it reveals only diagnosed contacts. It must be assumed that the number would rise appreciably if those in the family presenting asymptomatic tuberculous lesions were carefully studied. Furthermore, as shown by Weintraub² in a study of 1,046 children under 15 years of age of whom 547 were contacts and 499 noncontacts, tuberculosis of the adult type was found in eleven of the contacts but in not a single instance was it encountered in the noncontacts. It seems that, barring for the present moment the question of the probable effect of unfavorable economic conditions, it may be said that the problem resolves itself to the avoidance of infections with large doses of tubercle bacilli by early discovery of frank cases of tuberculosis and by the application of appropriate therapeutic management of the abacillary cases not necessarily under isolated conditions but of all open cases under segregation.

The early diagnosis campaign is, to say the least, ambiguous. If by it one means to imply that the physician should detect under ordinary circumstances tuberculosis in its early stages more often than he does, one demands of him what past experience has shown is not

Read before the Kanawha County Medical Society, Charleston, W. Va., Dec. 8, 1936.

1. Drolet, G. J.: Personal communication to the author.

2. Weintraub, W. L.: Tuberculin-Positive Children Observed for Various Periods up to Five Years; Study of 1,046 Reactors, *Am. Rev. Tuberc.* 33: 247-258 (Feb.) 1936.

possible. It is the universal experience of competent internists and phthisiologists that physical signs in minimal and early moderately advanced disease may be entirely wanting or so indistinct as to give no clue of the presence of pulmonary changes. Added to this fact is the observation that complaints, objective or subjective, often parallel the physical signs in the latency

TABLE 1.—History of Contact in One Hundred Consecutive Patients

Sex	Number	Contacts	Noncontacts
Male.....	50	18	32
Female.....	50	21	29
Total.....	100	39	61

of their appearance. In other words, assuming that the patient consults the physician soon after symptoms manifest themselves and that the physician in turn is alert enough to think of the presence of tuberculosis, the disease by that time has already passed its early phase in most cases.

TABLE 2.—Interval Between Appearance of Symptoms and Visit to Physician

Number.....	Sex		Total
	Male	Female	
1 month.....	15	32	47
1 to 2 months.....	6	5	11
3 months.....	5	1	6
4 months.....	5	4	9
5 months.....	1	2	3
6 months.....	2	0	2
6 months to 1 year.....	1	2	3
1 to 2 years.....	6	4	10
2 to 3 years.....	4	0	4
3 to 4 years.....	3	0	3
4 to 5 years.....	1	0	1
5 to 6 years.....	1	0	1

This is well illustrated in tables 2, 3 and 4, in which 100 cases are analyzed with regard to these points. It will be seen that 64 per cent of the patients consulted a physician within three months after the appearance of symptoms and that in 76 per cent of these a positive diagnosis was made by the family physician within three months after the first visit of the patient.

TABLE 3.—Interval Between First Visit to Physician and Positive Diagnosis

Number.....	Sex		Total
	Male	Female	
.....	50	50	100
.....	28	19	47
.....	4	12	20
.....	4	2	6
2 to 3 months.....	1	2	3
3 to 4 months.....	1	1	2
4 to 5 months.....	2	0	2
5 to 6 months.....	0	1	1
6 months to 1 year.....	1	5	6
1 to 2 years.....	0	2	2
2 to 3 years.....	2	5	7
3 to 4 years.....	1	0	1
4 to 5 years.....	2	0	2
5 to 6 years.....	0	0	0
6 to 7 years.....	0	1	1

Yet, as is shown in table 4, far advanced disease was already present in 84 per cent when diagnosed. It appears, therefore, that the detection of the disease in its earlier stages by awaiting the development of symptoms is not possible because of the insidiousness of onset.

If, on the other hand, early diagnosis signifies that the physician should detect tuberculosis early after the patient consults him, it may be proudly said that this is exactly what happens in the vast majority of instances, as already pointed out. It is apparent, therefore, that the finding of frank cases of tuberculosis can be enhanced only by methods of greater precision and by the utilization of a more extensive case finding program. The wider use of the x-rays and less attention to physical examinations in all patients who consult physicians for symptoms that even in the remotest way suggest the possibility or probability of tuberculosis will be a great step forward. I need merely cite the following case to illustrate this point:

CASE 1.—J. O., a white woman, aged 23, a housewife, was perfectly well until September 1936, when she noted a few specks of blood in her sputum on one occasion. At her hus-

TABLE 4.—Classification of Patients on Admission to Clinic

Sex	Number	1st Stage	2d Stage	3d Stage
Male.....	50	0	3	47
Female.....	50	2	11	37
Total.....	100	2	14	84

band's insistence she visited a physician, who found nothing of significance in the general examination but was attracted to the lungs by a few râles in the paravertebral region of the left midchest. He insisted that an x-ray examination be made to rule out any pulmonary pathologic condition as a cause for the streaked sputum. The x-ray film shown in figure 1 reveals a soft walled cavity immediately off the left cardiac border in the region of the second and third interspaces. Note also a Ranke complex in the right lung. Sputum was found to be positive for tubercle bacilli. The left lung was subsequently collapsed and at no time was the patient in the sanatorium. She is now doing housework once more.

The physician falls short of his duty if he stops here. He must exert all the influence that his personality and the confidence of the patient in him command to examine all contacts or arrange for free examination, when economic conditions forbid otherwise. In this way one

TABLE 5.—Number of Known Familial Contacts in Thirty-Three Patients

Sex	Number	Number of Contacts		
		1	2	3
Male.....	16	12	2	2
Female.....	17	11	4	2
Total.....	33	23	6	4

often surprisingly finds other tuberculous individuals not suspected and not rarely discovers "familial nests" of several persons, as can be seen by referring to table 5, which reflects the usual observations. I have at the present time under my supervision several patients in whose families there are from four to six tuberculous members.

While studies along the line just indicated of those who present themselves for examination are bound to disclose an increased number of diseased, there still remains an unknown number of sources that will not be reached unless the plan of attack is carried a step further—and it is here that a more extensive case finding program enters into consideration. I refer to those individuals who style themselves "cigaret coughers" or sufferers of "chronic bronchial trouble" and to the vast army of persons with quiescent lesions, in not a few of

whom the sputum is laden with tubercle bacilli. They form the more dangerous group, for they go about innocently for indefinite periods of time until symptoms of import appear, without any regard to the disposal of the sputum or to the application of other precautionary measures. These persons are true carriers, who can be discovered only by such measures as are about to be discussed.

1. The work of Lees³ with the students at the University of Pennsylvania not only is of great epidemiologic interest but also demonstrates how asymptomatic lesions can be discovered before they progress to the more advanced stage. As stated by him, the program embraces the following:

The tuberculin test is applied to all new students as a part of the entrance physical examination and chest x-rays are provided for the positive reactors. By this procedure all cases of pulmonary tuberculosis in the incoming group should be detected. If a student is found to have the disease in an advanced or infectious stage, he is advised to undergo treatment at once, thus eliminating from the student body a source of real danger. Students presenting minimal, healed or inactive lesions

an interval of six months following negative chest films; one case after eighteen months; three cases after twenty months; and three cases after an interval of two years. Only one of this group of ten students was symptom free and eight of the ten have received sanatorium treatment. In no case was there a history of symptoms having been present for a period as long as eight weeks. It should be emphasized that in the majority of such cases the pulmonary lesion has become decidedly dangerous in character and extent by the time definite symptoms have made their appearance.

Similar studies are in progress in many schools of medicine and nursing with similar results. Diehl and Myers⁴ have included in their studies faculty members and all employees of the school. This is a very important addition, for not rarely a teacher may be found to have an open case of tuberculosis (case 2).

CASE 2.—Miss I. G., aged 23, a school teacher, had been complaining of loss of weight and occasional cramps in the abdomen following meals for about two months before she consulted a physician. After examination the family physician referred her to a "nose and throat specialist," who advised a submucous resection. This was done, and except for slow healing of the wound the patient had an uneventful convalescence and returned

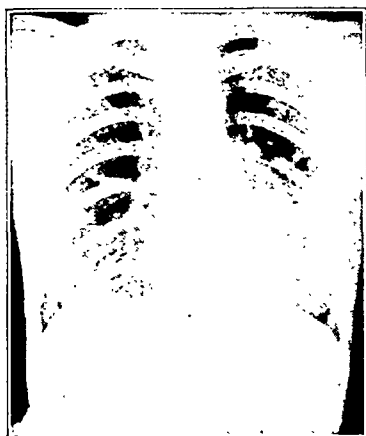


Fig. 1 (case 1).—A soft walled cavity immediately off the left cardiac border in the region of the second and third interspaces. Note also the complex of Ranke in the right lung.

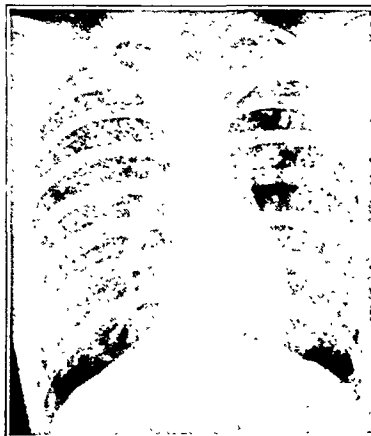


Fig. 2 (case 2).—Note extensive fine mottled infiltrate throughout both lungs, with multiple cavities in the left upper lobe.



Fig. 3 (case 3).—Appearance on admission to the hospital. There is shown a fibrocalcific lesion in the left upper lobe with cavity formation, and a productive stringy infiltrate in the right upper lobe.

may often be kept under close observation and their activities limited as may be indicated through careful study of each individual case.

In the same paper further very significant conclusions are recorded:

Recent statistics reveal the fact that tuberculosis mortality in males 20 to 24 years of age is more than double the rate which prevails in the age group 15-19 years. The sharpest rise in the incidence of tuberculosis occurs between the ages of 14-24. Certainly the problem as we have found it at the University of Pennsylvania is in keeping with the above. Most of our cases are found among upper classmen and especially those students enrolled in schools on the graduate level. We feel therefore that our program, to be most effective, must be extended so as to provide annual chest x-rays for all members of our student body who react to tuberculin. We realize that a negative chest x-ray obtained at the time of the student's entrance to the university is by no means a guaranty that he will remain free of tuberculosis for the duration of his college course. This fact is emphasized by our observation of the development of tuberculosis in a group of students who had previously been shown by x-ray to be entirely free of the disease. One student presented a definite tuberculous infiltration five months after a negative chest x-ray. Slight but suggestive symptoms were present. Two cases had been discovered after

home ten days thereafter. Several weeks later she returned to the specialist stating that she had noted no improvement and on one occasion had blood streaked sputum. Another examination was made and a tonsillectomy advised; that operation too was done. Following the tonsillectomy she began running a febrile course, remained in the hospital for about a week and then returned home, where she stayed in bed because of fever and marked fatigue. On bed rest, fever subsided except for a slight rise in the late afternoon. Several weeks later she began to have intermittent attacks of abdominal cramps and diarrhea, for which she again consulted her family physician, who gave her electrical treatment to the abdomen; a treatment which was continued for some time but without improvement.

At this time I saw and examined her. She was malnourished, and physical signs pointed to a definite pathologic condition in the upper lobes of both lungs. The sputum was positive and a roentgenogram of the chest as shown in figure 2 revealed extensive disseminated tuberculosis with multiple cavities in the left upper lobe.

At first one may wonder what this had to do with the general practitioner, but a second thought will convince one that without the family physician this work cannot be fully successful. It is to him that the parents or guardians often turn for advice as to the necessity and safety of such studies and the practicality of the cost

3. Lees, H. D.: Tuberculosis as a Student Health Problem, presented before the American Student Health Association at its annual meeting in New York City, Dec. 28, 1934.

4. Diehl, H. S., and Myers, J. A.: Tuberculosis in College Students, read before the Sociological Section of the Thirty-Second Annual Meeting of the National Tuberculosis Association at New Orleans, April 1936.

involved. Furthermore, to assure best results, school authorities must solicit the aid of the family physician if possible contacts are to be looked for at home. Unless the general practitioner is convinced of the importance of such studies no public health scheme, as the one just cited, can be of lasting or even of immediate benefit.

2. Similar studies are in vogue in some commercial organizations. I refer particularly to those of the Metropolitan Life Insurance Company, whose employees are periodically examined and whose applicants for employment have, in addition to a general physical examination, a thorough inspection of the lungs. The following case convincingly illustrates how industry can be of aid in a case finding program:

CASE 3.—A. L., a white woman, aged 34, a housewife, was rejected in August 1933 when she applied for a position at the Metropolitan Life Insurance Company. To discover the reason for this she consulted her physician, who said that she had "low blood pressure and irregular heart." In November the Metropolitan Life Insurance Company made an x-ray examination and pronounced her tuberculous. She was referred to Bellevue Hospital, where a left phrenicectomy was performed.



Fig. 4 (case 3).—Partial pneumothorax of left lung and complete collapse of cavity.



Fig. 5 (case 4).—Appearance in 1931, showing calcified nodes in the left hilus.

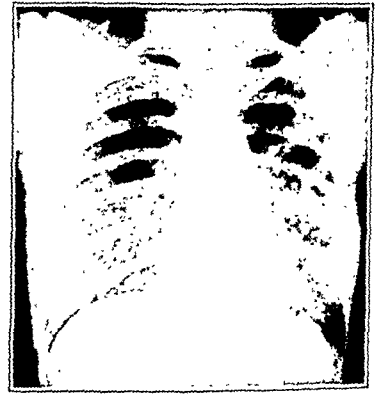


Fig. 6 (case 4).—Appearance in 1935 just before admission to the hospital: exudative cavernous process in left upper lobe.

The patient remained there for four months, leaving of her own will. In April 1934 she returned to Bellevue Hospital because she was getting hypogastric pains. Barium sulfate meal examinations were done with negative results. She then consulted our clinic in November and was subsequently admitted to the sanatorium. Figure 3 shows the x-ray film made on admission to the hospital. There is seen a fibrocalfic lesion in the left upper lobe and a cavity extending from the first into the second interspace. A stringy productive infiltrate is present in the right upper lobe. Pneumothorax was induced, resulting in an effective collapse, as can be seen in figure 4.

This is only one case of many in which tuberculosis has thus been detected. Recently other large industrial concerns have adopted this plan.

It is obvious that in the last analysis responsibility of convincing these individuals of the necessity for early treatment and of the importance of checking all contacts rests with the family physician. It becomes his duty to serve as a unit in the general scheme of educating the public, and particularly the business men of his community, of the advisability of such endeavors.

The universal adoption of careful examination of the students and employees of schools of higher education and of applicants and employees of large industrial plants points to a very potent method by which the unknown cases of tuberculosis and the sources of their infection can be found.

It is appropriate at this point to consider the value of the wholesale tuberculin testing of children as a case finding procedure. Even the most ardent supporters of this method admit its uselessness in grade school children. Attention has therefore been shifted to the high school groups, but even here there is controversy. Let us examine the facts and try to come to some tentative conclusions with regard to the attitude that should be taken. In the vast majority of instances children in various high schools were tuberculin tested and roentgenograms of the chest were taken of the positive reactors. Those who failed to react to tuberculin were properly considered to have had no infection but improperly dismissed from further consideration. Even the positive reactors, unless they showed active primary or secondary infections, were not always followed further.

What has been the result? Sporadic cases of tuberculous disease have been recorded, but, on the whole, in such an insignificant number of thousands on thousands examined as to cast serious doubt in the minds of the original advocates of this procedure as to its practicality.

In other words, it is being questioned whether those entrusted with public or private funds that could be used to more profitable advantage are justified in utilizing them in consideration of the meager returns.

There are, however, other points to be held in mind. First, of what lasting advantage is the discovery of tuberculous disease in the child unless it is utilized to find the source of infection?

Second, is one justified to assume in the light of our knowledge as to the pathogenesis of tuberculosis that the positive reactor without any evident tuberculous disease may be dismissed from further observation at least through adolescence?

Third, is it to be taken that a child failing to react to tuberculin at any given time will not shortly thereafter become infected and subsequently become exposed to the possibilities of his positive reacting brother?

It is these questions that have been raised by some county medical societies which have been asked to approve mass tuberculin testing of children. In fact, approval would not be given in certain instances unless the program would include periodic follow-up examinations of positive reactors and repeated tuberculin testing at various intervals of the negative reactors.

But even under these provisions recent work seems to cast doubt on the plausibility of the universal applica-

tion of mass tuberculin testing methods. Most convincing is the paper by Weintraub,² reference to which has already been made. The following two cases unmistakably confirm his report:

CASE 4.—A white girl, aged 14 years, was admitted to the sanatorium in December 1935. The past history was significant in that both the grandfather and father had died of tuberculosis, the former in January 1935 and the latter ten years before. She was followed as a contact case in the tuberculosis clinic, where an x-ray film (fig. 5) taken in January 1931 revealed calcified nodes in the left hilus. No further x-ray films were taken and she got along well until January 1935 at about the time of the death of her grandfather, when she experienced the sudden onset of fever, cough and high temperature. She was immediately put to bed and remained there for one month under a physician's care. The temperature remained elevated for several days and the condition was diagnosed influenza. When she got up from bed the cough had ceased and she felt fairly well except for a persistent feeling of weakness. This finally disappeared and slight increase in weight was noted. She returned to school, making monthly visits to the clinic. One month before admission to the sanatorium she was overtaken by a sharp pain in the left side of the chest, which lasted throughout the night. This was followed by productive cough. An x-ray film was then taken and, as seen in figure 6, revealed

x-ray film taken after the onset of symptoms, reveals a soft infiltrate in the apex extending into the first and second interspaces of the left upper lobe and a cavity in the region of the first interspace. At the present time the patient is in the sanatorium and on bed rest is making favorable progress, as is shown in figure 12.

Both of these patients were in school during their infective stage and would no doubt have been found earlier if a tuberculin test survey had been made in those schools. On the other hand there remains the fact that, if they had been followed more closely as contacts, their tuberculosis would have been detected without such a survey and properly managed sooner.

It seems, therefore, that there is no justification in diverting needed funds and the attention of the public and the medical profession from the program followed by schools of higher education and by some of the large industrial plants, which is more practical and which in the long run will be productive of the results desired. I do not wish, however, to be understood to go on record entirely against mass tuberculin testing. I feel that it has its place as a supplement to or as a poorer substitute for the program just outlined, provided the

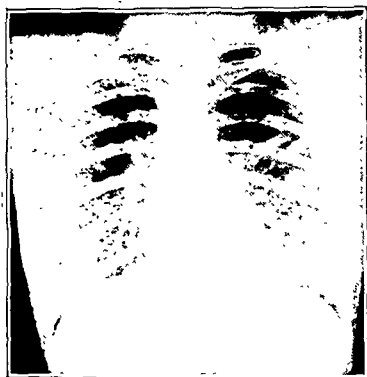


Fig. 7 (case 4).—Note partial collapse of the left lung, with complete obliteration of the cavity.



Fig. 8 (case 5).—Appearance in 1930 when the patient was examined as a contact. Note accentuation of the pulmonary markings extending from the upper pole of the left hilus toward the apex and the mottled infiltrate along the apical branch of the bronchus of the upper lobe.

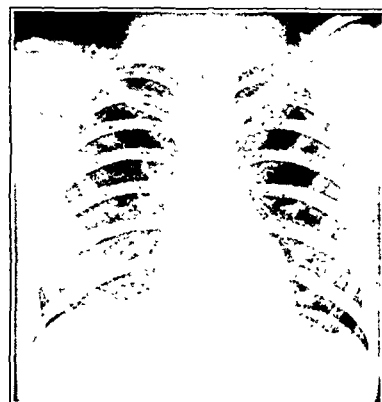


Fig. 9 (case 5).—Appearance in 1934, showing a homogeneous dense infiltrate in the left apex in the region where there was only a mottled infiltrate in the film of 1930.

an exudative ulcerative process in the left upper lobe. On admission to the sanatorium the sputum was found positive and pneumothorax was induced on the left side. Figure 7 shows an effective collapse of the left lung. The patient is now ambulatory and back in school.

CASE 5.—C. G., a white girl, aged 14 years, and her sisters and brothers were examined at the tuberculosis clinic after the death of their mother of tuberculosis in 1930. They were told that they were infected but were allowed to continue at school and do their routine work. In August 1934, following her monthly examination, she was told that her condition was worse and she was sent to the state sanatorium. At that time she was symptom free. While at the sanatorium she was not confined to bed at any time and continued to go to school. She was allowed complete freedom and remained symptom free. In 1935 a tonsillectomy was performed and she was finally discharged from the sanatorium in January 1935 and referred to the tuberculosis clinic in her community. She felt well until February 1936, when chills, fever and loss of appetite developed and she became easily fatigued; this was followed by several hemorrhages. A review of the x-ray films shown in figures 8, 9, 10 and 11 shows that no x-ray examination was made between 1930 and 1934, by which time she already had an infiltrate in the left apex. After discharge from the state sanatorium a small cavity is noted in the left first interspace, as revealed in figure 10. Finally figure 11, representing an

community can afford it and provided, too, that it is used to find the source of infection. It should also be occasionally utilized when tuberculosis is discovered in a pupil. Under such conditions it would be only natural to determine the status of the other pupils just as would be done if a definite case of diphtheria had been found.

Up to this point I have attempted to indicate the rôle of the practitioner in the examination of contacts of the known cases of tuberculosis and the part he must play as an educator in the larger plan of case finding of individuals with asymptomatic tuberculosis. This, however, is not sufficient—his influence must be extended to include the proper management of the open case, with two things in mind: first, to segregate the patients and, second, to convert the sputum abacillary by early treatment at home or in the office of those in whom this is possible. In this respect it has been my experience that the practitioner often temporizes or else divorces himself from the case by referring it to a tuberculosis clinic. The former attitude is often due to lack of acquaintance with the modern treatment of pulmonary tuberculosis. The physician must realize

that the earlier appropriate therapeutic measures are applied the sooner the patient ceases to be a menace, and the prognosis becomes increasingly more favorable in many instances.

It is not my purpose to go into details as to the treatment of pulmonary tuberculosis and its complications at this time. This has been done elsewhere.⁵ It is important, however, to stress that the family physician should be conversant with the recent concepts on the treatment of pulmonary tuberculosis. He should know that, while the infiltrative forms of this disease with negative sputum often respond to the hygienic bed rest regimen, more active treatment should be entertained at once in all cases in which cavitation is present. Even though it is true that certain types of small cavities not infrequently become obliterated without collapse therapy, it is best for the practitioner to take the attitude that, by and large, such results in cavernous tuberculosis are the exception rather than the rule.

With these principles as a basis, the practitioner can make himself useful in many respects to the patient and the community. He should aid the public health agencies in selecting those individuals who, because of poor home conditions, because of severity of the disease, or

great bearing on the control of tuberculosis. This sentiment is well expressed by Max Pinner,⁶ who says:

One may well question whether the insanitary living conditions per se are not a most significant condition to make reinfection, be it endogenous or exogenous, possible. In other words, many persons may not and do not develop clinical disease though they are exposed to open tuberculosis; but if the strain of slum conditions or intercurrent disease is brought to bear on the individual, he may succumb to his endogenous or exogenous sources of infection. For all practical purposes the problem resolves itself into the question whether living conditions in the widest sense of the word or whether exposure to an exogenous source of infection is the dominant factor in producing postprimary disease.

There is no doubt in my mind that poor economic conditions with the resultant unhygienic home surroundings play an important part in adding to the number of tuberculous persons. Observations on the patients in our outpatient department indicate that the number of readmissions are greater among those who return from adverse home conditions.

It seems to me that it is not sufficient merely to admit the existence of an economic factor in the development of frank cases of tuberculosis. One should, as one does in certain industrial diseases, not only point out the



Fig. 10 (case 5).—Appearance after discharge from the state sanatorium. A remarkable resolution of the dense infiltrate is seen in the left apex, but a small cavity is noted beneath the second anterior rib surrounded by an exudative infiltrate.

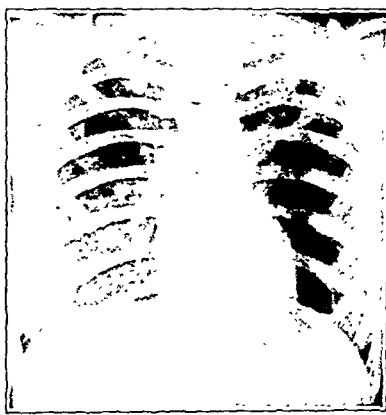


Fig. 11 (case 5).—Appearance in February 1936, when all the classic symptoms of pulmonary tuberculosis developed. Note an exudative bronchopneumonic infiltrate, extending from the left apex to the third interspace and a cavity in the region of the first interspace.



Fig. 12 (case 5).—Present status. Note marked resolution of the bronchopneumonic infiltrate, leaving stringy densities and complete closure of the cavity.

because of the presence of children require immediate hospitalization. If segregation is not immediately available, he should urge the patient suitable for collapse therapy to seek it in properly equipped clinics or from private sources, depending on the economic status of the patient. It has been indicated by the work of the Henry Phipps Institute and in the Chicago Municipal Sanatorium Clinics that collapse therapy in selected cases may be instituted while the patient is at home either awaiting sanatorium admission or refusing to seek admission. Under such conditions many patients become abacillary and their disease is gotten under control so that sanatorium care is subsequently not needed. As a result, many more beds become available for those urgently in need of them. Finally, while the patient is awaiting admission to the sanatorium it should be the physician's duty to instruct him as to precautionary measures.

It is important to take one more factor into consideration, one that is little stressed but nevertheless has a

hazards but also suggest methods of avoiding them. In this respect the general practitioner, and the profession as a whole, should, as it were, "crawl out" of his secluded medical life and exert his influence and prestige to encourage the clearing of slums and the improvement of conditions generally of the people in the lower strata of life.

Hudson County Tuberculosis Hospital and Sanatorium.

6. Pinner, Max: Pathogenesis of Tuberculosis, J. A. M. A. 107: 475 (Aug. 15) 1936.

5. Potter, B. P.: Modern Concepts on the Collapse Therapy of Tuberculous Pulmonary Cavities, Am. Rev. Tuberc. 31: 499-517 (May) 1935.

Thomas Owen.—So let us remember that some one other than a visiting physician or surgeon may indelibly stamp his personality on the hospital he serves. In the old Blockley Hospital in Philadelphia a tablet has been erected to Thomas Owen, who for some thirty years as head nurse of the men's medical floor was known to successive generations of attendants and residents, most of whom are forgotten, or at least their association with that picturesque old hospital has been, while his will remain for all time. And why? Because he gave all that he had to the institution, and it left him famous, whereas the others, a good many of them, used the old Philadelphia Hospital not infrequently for political or private ends and are buried in oblivion.—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

HEMOLYTIC STREPTOCOCCUS
MENINGITISREPORT OF CASE WITH RECOVERY AFTER THE
USE OF PRONTOSIL AND SULFANILAMIDE

EDWARD DYER ANDERSON, M.D.

MINNEAPOLIS

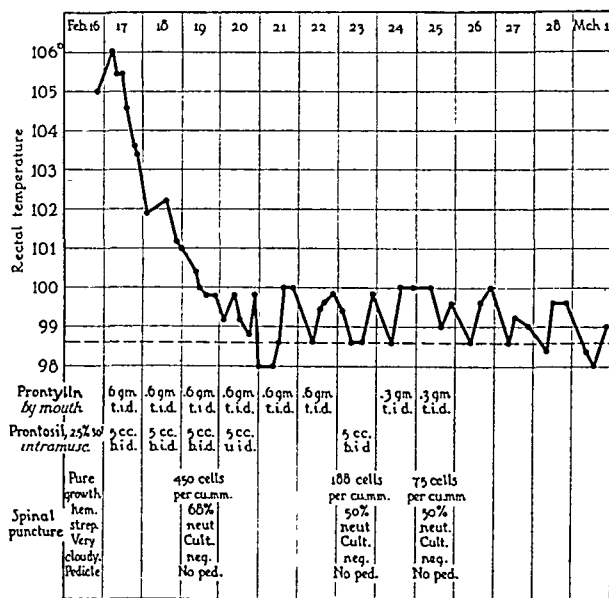
In reviewing the literature one finds reports of cases of recovery in streptococcal meningitis, but these are comparatively rare. In July 1935 Gray¹ presented a summary of the literature on this subject and found sixty-six cases, including his own, reported in the last thirty-five years. He feels that streptococcal meningitis is at least 97 per cent fatal. Since his report there have been nine cases of recovery reported and with the case being reported by me it gives a total of seventy-six cases with recovery reported in the literature in the last thirty-seven years. In seventy-three of the seventy-six cases the treatment consisted of repeated spinal punctures, spinal washings, injections of antistreptococcus serum, blood transfusions or a combination of these methods. In many of these cases the meningitis was of otitic origin, and mastoidectomy was done in many of the cases. In almost all of these seventy-three cases the treatment was carried out over a considerable length of time before the patient was pronounced cured.

There were two cases of particular interest reported in 1936. Walker and King² reported a case in which streptococcal meningitis developed after an induced abortion in which both blood and spinal fluid cultures gave a positive growth of hemolytic streptococci. Transfusions were given daily for ten days with blood taken from donors who had previously had scarlet fever. The patient made an uneventful and fairly rapid recovery. Caussé, Loiseau and Gisselbrecht³ in February 1936 made the first report in the literature of a case of hemolytic streptococcus meningitis with recovery after treatment with prontosil. Their patient was a man, aged 46, in whom a hemolytic streptococcus meningitis of otitic origin developed. After receiving prontosil intravenously and by mouth, he showed definite improvement in twenty-four hours, and in forty-eight hours the spinal fluid was sterile. The patient made a complete recovery.

In February 1935 Domagk⁴ gave an account of chemotherapeutic investigations with mice infected with hemolytic streptococci from human source and treated with various drugs. Among the drugs described was an earlier preparation called prontosil, which was the hydrochloride acid salt of 4-sulfamido-2, 4-diaminoazobenzol, which is a red, crystalline powder. Pharmacologically it is remarkably inert, yet the drug appeared to have a definite elective action on streptococci in mice. He showed this by photomicrographs of smears taken from the peritoneal cavities of infected mice and controls. Encouraging results were also shown in rabbits suffering from chronic streptococcal infections. He showed that it had a definite chemotherapeutic effect on streptococci and to a certain extent on staphylococci. It is practically inert in relation to pneumococci and other pathogenic organisms. Since then his work with

animals has been either partially or completely confirmed by Levaditi and Vaisman,⁵ Hörlein,⁶ Colebrook and Kenny,⁷ Long and Bliss⁸ and Nitti and Bovet.⁹

In the last two years several writers have reported their results with the clinical use of prontosil. Schreus¹⁰ in 1935, Meyer-Heine and Huguenin,¹¹ Kramer¹² and Scheurer¹³ in 1936 reported excellent results when prontosil was used for the treatment of erysipelas. Anselm,¹⁴ Colebrook and Kenny,⁷ and Ley¹⁵ reported most favorably on its use in puerperal fever. Tixier and Eck¹⁶ reported three cases of streptococcal empyema in which excellent recoveries were made after the use of prontosil. As stated previously, Caussé, Loiseau and Gisselbrecht³ reported a case of hemolytic streptococcus meningitis with recovery after the use of prontosil. The consensus of all the authors seems to be that prontosil is of value in the treatment of hemolytic streptococcus infection but apparently has little or no effect on other strains of streptococci or other organ-



Rectal temperature in case of hemolytic streptococcus meningitis.

isms. The drug is apparently nontoxic in ordinary dosage. The way in which it works on hemolytic streptococci is at the present time unknown. Although at first it was thought that the drug should be given intravenously as well as by mouth, it is now generally considered unnecessary to use the intravenous method and it is given intramuscularly and by mouth.

REPORT OF CASE

History.—F. C., a boy, aged 9 years, was brought into Abbott Hospital Tuesday night, Feb. 16, 1937, at 9 p. m. The mother and father were living and well. There were no other children. The boy had always been well until January 1937 except for ordinary infections of the upper respiratory tract. In the early

5. Levaditi, C., and Vaisman, A.: *Compt. rend. Soc. de biol.* **110**: 946, 1935.

6. Hörlein, H.: *Proc. Roy. Soc. Med.* **29**: 313 (Feb.) 1936.

7. Colebrook, Leonard, and Kenny, Meave: *Lancet* **1**: 1279 (June 6) 1936.

8. Long, P. H., and Bliss, Eleanor A.: *Para-Amino-Benzene-Sulfonamide and Its Derivatives*, J. A. M. A. **108**: 32 (Jan. 2) 1937.

9. Nitti, F., and Bovet, D.: *Compt. rend. Soc. de biol.* **110**: 1277, 1935.

10. Schreus, H. T.: *Deutsche med. Wchnschr.* **61**: 255 (Feb. 15) 1935.

11. Meyer-Heine, A., and Huguenin, Pierre: *Presse méd.* **44**: 454 (March 18) 1936.

12. Kramer, W.: *München. med. Wchnschr.* **83**: 608, 1936.

13. Scheurer, Otto: *Med. Klin.* **32**: 739 (May 29) 1936.

14. Anselm, E.: *Deutsche med. Wchnschr.* **61**: 264 (Feb. 15) 1935.

15. Ley, Lothar: *München. med. Wchnschr.* **82**: 1092 (July 3) 1936.

16. Tixier, L., and Eck, M.: *Bull. Soc. de pédiat. de Paris* **33**: 423 (Oct.) 1935.

1. Gray, H. J.: *Streptococcal Meningitis*, J. A. M. A. **105**: 92 (July 13) 1935.

2. Walker, M. A., and King, E. O.: *Ann. Surg.* **104**: 475 (Sept.) 1936.

3. Caussé, Loiseau and Gisselbrecht: *Ann. d'oto-laryng.* February 1936, p. 194.

4. Domagk, Gerhard: *Deutsche med. Wchnschr.* **61**: 250 (Feb. 15) 1935.

part of January he had measles. He recovered from this and was apparently well until nine days before admission to the hospital, when pain developed in the left ear, which persisted until two days before admittance to the hospital. The pain was not constant and at no time was it extreme. Although his temperature was not taken, the mother thought it was slightly elevated at times. There was no discharge. Two days before admittance to the hospital he seemed much better and went outdoors the day before. He was seen by a neighbor who was a trained nurse and she thought he looked bad and sent him home after taking his temperature and finding it to be 99.5 by mouth. That evening he complained again of earache on the left side. The next morning, February 16, he woke up complaining of severe headache and had an elevation of temperature. He vomited and as the day went on became very restless. His temperature continued to rise and toward the end of the day he became stuporous with intervals of extreme restlessness. He was sent to the hospital and at the time of entrance his temperature was 105° F. (rectum).

Physical Examination.—He lay in bed in a semistupor and every few minutes would cry out sharply and toss from side to side. He was unable to answer questions. His cheeks were flushed and he had a pained expression.

The physical examination revealed moderate rigidity of the neck with positive Brudzinski's sign, marked hyperesthesia of the entire body and ptosis of the right eyelid. The pupils were dilated and reacted sluggishly to light. Kernig's sign was slightly positive in both legs and the Babinski reflex was negative on both sides. Knee jerks were absent on both sides. The left ear drum appeared dull and was bulging slightly. There was no pulsating of the drum. The right ear drum was normal.

Roentgen examination of both mastoids gave the following picture: The right mastoid was undeveloped. The left mastoid showed a first degree of infiltration of all the cells without evidence of destruction.

The pharynx was slightly reddened. The tonsils were not present. The nose was normal and the heart, lungs and abdomen were normal.

Subsequent Course and Treatment.—A spinal puncture was done and 50 cc. of a markedly cloudy fluid was obtained with slight increase of pressure. A pedicle formed within one hour. A direct smear made from a centrifugated specimen showed no organisms but large numbers of pus cells. Unfortunately, no cell count was made of this specimen. A culture was made on broth and blood agar and twelve hours later the broth showed a pure growth of hemolytic streptococci. Tubes 2 and 3 of this spinal fluid were sent to Dr. W. P. Larson of the University of Minnesota, who obtained from each one a pure culture of hemolytic streptococcus.

Paracentesis of the left ear drum was done and a small amount of serosanguineous discharge was obtained.

The morning of February 17, the boy's temperature was 106° F. by rectum and the general condition was unchanged except that he seemed more stuporous. There was very slight drainage from the ear. He was given 5 cc. of a 2.5 per cent solution of prontosil¹⁷ intramuscularly twice a day and two 0.3 Gm. tablets of sulfanilamide by mouth three times a day. The prontosil was given intramuscularly twice a day until seven doses had been given. Two 0.3 Gm. sulfanilamide tablets were given for six days. Prontosil was then given intramuscularly for one day and then one 0.3 Gm. tablet of sulfanilamide three times a day for two more days, after which all medication was stopped.

His general condition remained the same during the day except that his temperature had dropped to 103.4° F. by rectum by evening. The next morning, February 18, his temperature was 102° F. by rectum, and he seemed markedly improved. He answered questions, recognized his parents and said that he had no pain. He was drowsy all day but could be easily aroused and would answer questions intelligently but sluggishly. There was very slight drainage from the ear.

The next day, February 19, he was much better, took food and fluids well and was much less drowsy. His temperature was 101° in the morning and 99.8° later in the day. Rigidity of the neck was markedly less and ptosis of the eyelid had disappeared. There was no hyperesthesia. The ear was dry. A spinal puncture was done and 20 cc. of fluid was obtained

with slight increase of pressure. The fluid appeared much less cloudy than the original specimen. There were 450 cells per cubic millimeter, showing 68 per cent polymorphonuclears. A culture taken from this specimen was negative. The following day, February 20, he was still slightly drowsy but at times wanted to sit up, wished to look at funny pictures and in every way was markedly improved. Rigidity of the neck was gone.

The boy continued to improve and by February 22 seemed perfectly normal. He had no complaints, ate well, played the radio, read when allowed to and said he had no pain or discomfort. Spinal puncture made February 23, one week after admission, gave a nearly clear fluid under pressure; the cell count was 188, with 50 per cent polymorphonuclears, and culture was negative.

February 25, 15 cc. of clear fluid under practically normal pressure was obtained on spinal puncture and there were 75 cells per cubic millimeter with 50 per cent polymorphonuclears. Culture was negative.¹⁸

SUMMARY

In a case of hemolytic streptococcal meningitis there was rapid, complete recovery following the use of prontosil and sulfanilamide.

301 Kenwood Parkway.

THE DIAGNOSIS OF ADDISON'S DISEASE

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Although the typical case of Addison's disease can be recognized clinically, the laboratory becomes an indispensable aid in the diagnosis of those cases which do not entirely fit the ordinary picture. Realizing the serious prognosis implied in such a diagnosis, as well as the importance of evaluating the therapy, my associates and I have in doubtful cases employed the salt restriction test suggested by Harrop and his co-workers¹ for final diagnosis.

In cases of Addison's disease during restriction of sodium chloride, signs of early relapse can be expected any time after the first day but usually somewhere between the third and the fifth. Characteristic concomitant alterations in the blood are lowering of the sodium and chloride, elevation of potassium and nitrogen, hemoconcentration and diminution in blood volume. An example of this is the case of T. M., in whom a typical addisonian crisis occurred on the fifth day following a change in his diet from one containing approximately 12 Gm. of sodium chloride daily to one containing only from 1 to 4 Gm. daily. Associated with this there was an increase in the blood nonprotein nitrogen from 35.2 mg. to 48 mg. per hundred cubic centimeters, an increase in the hematocrit from 45 per cent (per cent of cells) to 49 per cent, a fall in plasma chloride from 326 mg. to 284 mg. per hundred cubic centimeters and the extremely low plasma sodium of 223 mg. per hundred cubic centimeters. Prompt recovery followed the intravenous administration of 3,000 cc. of physiologic solution of sodium chloride. No extract was used.

18. The boy left the hospital ten days later apparently perfectly well and when seen by me three weeks later was in excellent physical condition and showed no evidence of sequelae.

Mrs. Genevieve Bourke prepared the diets used.

From the Department of Internal Medicine, University of Michigan Medical School.

1. Harrop, G. A.; Weinstein, Albert; Soffer, L. J., and Treacher, J. H.: The Diagnosis and Treatment of Addison's Disease, J. A. M. A. 100: 1850-1855 (June 10) 1933.

17. The prontosil used was manufactured by the Winthrop Chemical Company. This is the diodium salt of 4-sulfamidophenyl-2-azo-7-acetyl-5-methyl-3-hydroxyphenylalanine-3, 6-disulfonic acid.

To depend on the presence or absence of subjective improvement following the administration of adrenal cortex extract for diagnostic information is subject to criticism. That no such marked specificity of treatment is to be expected is shown by the existence of doubt in the minds of many,² in regard to its actual usefulness in the treatment of proved cases. It is my impression that the latter method is employed frequently when laboratory facilities are wanting and in some cases has led to incorrect diagnosis and the fostering of an expensive and unnecessary type of therapy. This is well exemplified in the following protocol:

History.—H. M., a salesman, aged 48, was admitted to the hospital Dec. 14, 1935. Although his general health had been good, within the past three years there had been a gradual onset of weakness, loss of libido, and a darkening of the skin. Three months previous to admission a presumptive diagnosis of Addison's disease had been made, and the administration of a commercial adrenal extract was attended by such improvement that a daily injection had been continued until the time of his admission here.

Speaking of this placebo in a letter dated April 9, 1936, the patient states, "It is truly amazing how I picked up after taking those shots. My color was better than in a long, long time and my stomach and general condition was much improved."

COMMENT

This demonstrates well the psychic stimulation attending the administration of an injectible substance which, to this neurasthenic patient, was quite indistinguishable from potent adrenal cortex extract. Hartman³ suggests the use of adrenal cortex extract in all asthenic states "which cannot be accounted for by known cause," not as a diagnostic test but as a therapeutic measure. It occurs to me that these patients might be, to a large extent, of the psychoneurotic group receiving their benefit in a nonspecific way from the actual injection itself. Since patients of this type are apt to exhibit favorable response to suggestive therapy, one must be on guard not to mistake this for genuine improvement in an organic disease. It is my opinion that if adrenal cortex extract is to be used the dose should be large and

Observations While Patient Was in the Hospital

Date	Day	Weight, Kg.	Chloride* Intake, Gm.	Chloride, 24 Hour Urine, Gm.	Chloride "Balance," Gm.	Blood								Comment
						Plasma N. P. N., Mg. per 100 Cc.	Plasma Chloride, Mg. per 100 Cc.	Plasma Sodium, Mg. per 100 Cc.	Plasma Pro- teins, per Cent	Plasma Albu- min, per Cent	Plasma Glob- ulin, per Cent	Hemat- ocr it Cells, per Cent	Sugar, Mg. per 100 Cc.	
						Control Period—No NaCl Restriction								
12/18/35	1	70.3	4.5	3.5	+1.0	36.3	359.5	324	7.0	4.3	2.7	45	..	Complains of weakness
12/19/35	2	70.3	4.5	3.8	+0.7	....	....	....	....	....	....	..	..
12/20/35	3	70.6	3.5	4.8	—1.3	....	356.8	....	....	....	....	46	..
12/21/35	4	69.6	4.5	3.3	+1.2	Slight nausea
12/22/35	5	69.7	5.9	3.4	+2.5	....	....	....	....	....	....	..	..
Test Period—Rigid NaCl Restriction														
12/23/35	6	69.9	0.94	2.93	—1.99	30.7	355	6.7	4.2	2.5	45	74	Seems bright; only com- plaint is weakness
12/24/35	7	69.5	1.16	1.88	—0.71	....	....	....	....	....	....	..	..
12/25/35	8	69.4	0.65	1.68	—1.03	31.1	349.7	....	....	....	....	..	..
12/26/35	9	68.8	1.0	0.95	+0.05	29.2	348	Malaise Feels improved today
12/27/35	10	69.1	0.93	0.72	+0.21	....	....	....	....	....	....	..	..
12/28/35	11	69.1	1.07	0.48	+0.64	32.9	360	....	....	....	....	..	..
12/29/35	12	68.9	1.07	0.52	+0.55	
12/30/35	13	69.0	1.12	0.44	+0.68	....	....	....	....	....	....	..	..
12/31/35	14	....	....	....	.....	30.3	349.7	313	6.9	4.2	2.7	49	84
Test Concluded—House Diet Resumed														
1/15/36	35.8	342.6	7.0	4.5	2.5	..	54	Continues to complain

* This is computed from standard food tables. All other figures represent actual determinations.

Examination.—The blood pressure was 110 systolic, 70 diastolic. Although there was a uniform tanning of the skin, this was not present on the mucous membranes and was not darker than that seen in many brunette individuals.

Special Studies.—The examinations of the urine and blood were negative. The Kahn test was negative. The basal metabolic rate December 17 was —19 per cent. The dextrose tolerance test (with 1.75 Gm. of dextrose per kilogram of ideal weight) was: fasting 78 mg. per hundred cubic centimeters, first hour 113, second hour 101 and third hour 40. Stereoscopic roentgenograms of the chest were negative for tuberculosis. Films of the adrenal areas demonstrated no calcification.

Hospital Course.—To clarify the diagnosis the patient was placed on a low sodium chloride diet (from 1 to 1.7 Gm. daily) and although he complained of nausea and weakness on occasion there were none of the usual changes of the blood seen in cases of Addison's disease (as shown in the table). Desiccated thyroid gland given over the next two months in amounts that maintained the basal metabolism at a normal rate (+4 per cent Jan. 24, 1936) did not relieve his symptoms.

So fixed was the belief in the patient's mind that he would be quite well after a course of parenteral adrenal cortex extract that it was suggested by others of the staff (Drs. A. C. Curtis and Robert S. Ballmer) that a placebo be tried in preference. Thus he received between Feb. 6, and Feb. 14, 1936, four subcutaneous injections of sterile distilled water, and so marked was the improvement that he was discharged on February 20.

the treatments frequent but it should be reserved for the case of outspoken Addison's disease.

Recently Wilder and his co-workers⁴ at the Mayo Clinic have shown that in cases of Addison's disease an increase in the intake of potassium may augment the urinary loss of sodium and provoke a crisis even when the sodium chloride intake is high (18 Gm.). Likewise a lower sodium chloride intake may be tolerated in the presence of a restriction of potassium. Therefore, as they have pointed out, it would seem desirable in the future when using the salt restriction test to keep the potassium intake high (4 Gm. or more).

It should be emphasized that the low salt diet is not without danger to the patient with Addison's disease, especially when allowed to progress to the point of crisis. Although it has been clearly shown that the extract has no value when used alone in the treatment of acute relapse,⁵ Harrop¹ feels that it may be a life-saving measure when used in large amounts in conjunction with intravenous sodium chloride. It should always be on hand to be used in case of an emergency.

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THE OCCURRENCE OF DIPLOCOCCUS PNEUMONIAE IN INFECTIONS OF THE URINARY TRACT

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In October 1929 Dr. Robert H. Akin of the Department of Urology of the University of Oklahoma School of Medicine brought to us a smear of prostatic secretion stained with methylene blue. The patient from whom the slide was taken called on the doctor complaining of burning on urination and a urethral discharge, although at the time no discharge was evident. There was no history of *Neisseria gonorrhoeae* infection for the previous three months. Microscopic examination of the stained slide showed numerous clumped pus cells and a lancet shaped diplococcus with a suggestion of a capsule. Attempts to cultivate this organism at that time were unsuccessful. During the following six years we noticed the same organism in various urethral and prostatic smears and in urinary specimens brought to us for examination.

July 1, 1935, funds were made available by legislative appropriation to permit the Department of Bacteriology to carry on a careful bacteriologic and clinical investigation of this problem. Dr. Akin investigated the clinical aspects of these infections and will make a separate report. Our report deals primarily with the bacteriologic aspects of the problem. Dr. Akin secured the specimens from his patients for our work. This problem was considered to be of special importance, as many of the patients had been previously diagnosed as having gonorrhea. Hence the social aspects of the infection had to be considered. Owing to the fact that the organism when seen in direct smear and stained with gram stain was a gram-positive lancet shaped diplococcus associated with pus, we thought that it might be a pneumococcus and carried on our investigations accordingly.

A considerable amount of work has been done relative to pneumococcal infections and their effect on the organs of the genito-urinary tract, especially the kidney. The work of Blackman¹ and of Blackman and Rake² is outstanding. Their work deals with the effect on the kidney of the toxic products produced by pneumococci. They did not make a bacteriologic study of the urine. Barney³ reported 121 cases of pyogenic coccus infections of the kidney but did not identify them bacteriologically and made no specific reference to pneumococci. Cabot and Nesbitt⁴ reported a study of twenty-seven cases of coccic infections of the urinary tract and their relation to the upper respiratory tract. They made their diagnosis by direct smears and did not attempt to culture the micro-organism. Bolend⁵ in 1924 reported an organism resembling in some respects *Diplococcus*

pneumoniae from genito-urinary tract infections, similar to the organism with which we are working, which he called a pseudogonococcus. He pointed out that this organism did not correspond with any known diplococcus described at that time. He studied this organism morphologically, culturally, serologically and by animal inoculation.

Gibson and Wiley⁶ reported that gram-positive diplococci morphologically resembling pneumococci are very commonly found in genito-urinary infections but did not identify them culturally or serologically. Neale⁷ reported a study of kidney complications in lobar pneumonia but carried out no cultural investigations. Matzenauer⁸ reported a case of inflammation of the urethra due to pneumococci. The patient gave a doubtful history of no contact with the organism. It was of metastatic origin from antedating grippal infection of the upper respiratory tract. Stadnichenko⁹ reported thirty strains of gram-positive cocci isolated from kidney infections, all of which were staphylococci. Sujoy¹⁰ reported a case of urethrocystopyelitis in a child who developed pneumococcal vaginitis. Treatment of this case with ethylhydrocupreine gave satisfactory results.

Bergey¹¹ lists only one gram-positive diplococcus other than the pneumococci, i. e., *Diplococcus pluton*, which is accused of causing foulbrood in bees; but this organism does not grow on artificial mediums. Zinsser and Bayne-Jones¹² do not mention pneumococci as a cause of genito-urinary infection. This is true as far as we know of all other textbooks of bacteriology.

The literature reviewed to date concerning genito-urinary tract infections by pyogenic cocci reveals no extensive investigation that deals with the existence of pneumococci as the causative agent in these infections.

Up to the present time we have examined and cultured specimens from 384 patients, 329 of whom were suffering from genito-urinary symptoms. The remainder were apparently healthy medical students who gave no history of genito-urinary trouble except one who had had renal colic. At least two specimens were cultured from each patient and in many cases as many as six. All specimens from female patients were obtained by catheterization. Those from male patients were obtained by first cleansing the external genitals with soap and water and then applying 70 per cent alcohol with sterile cotton applicators or 4 per cent mercurochrome. Excess alcohol or mercurochrome was removed with sterile gauze. The first urine voided was discarded, the second and third specimens were saved. These specimens will be referred to in this paper as second and third urines. Many specimens were obtained after prostatic massage.

All specimens were preliminarily cultured by adding approximately 1 cc. of urine to 7 cc. of brain heart infusion broth. If no growth was obtained after nine days' incubation, the culture was discarded and recorded as sterile. We usually had growth in from twenty-four

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to forty-eight hours. When growth was obtained the culture was examined morphologically by the gram staining technic. In three cases a gram-positive diplococcus appeared in the culture after three days' incubation. If organisms other than gram-positive diplococci or streptococci were obtained, such as staphylococci, gram-positive or gram-negative bacilli and Sarcina, these morphologic types were recorded but the cultures were discarded. All cultures showing gram-positive diplococci or streptococci were saved for further identification. If a mixed culture was obtained showing either of the foregoing two organisms, it was streaked on brain heart infusion plates and typical colonies were picked and saved for identification. Mixed cultures were obtained in only five cases, the remainder of our diplococci or streptococci being pure cultures on primary isolation. The distribution of types of organisms and sterile cultures from patients showing genito-urinary symptoms was as follows:

Gram-positive lancet shaped diplococci (some appearing as diplostreptococci), 96.

Streptococci (not showing diplo formation in the chains), 2.

Staphylococci in second urine, third urine being sterile from same patients, 44.

Staphylococci in second and third urines, 47.

Gram-negative rods, 15.

Gram-positive spore bearing rods, 19.

Sarcina, 6.

Sterile second and third urines for nine days or longer, 98.

Small yeasts (not identified), 2.

Total 329.

Specimens from healthy controls cultured in the same manner showed the following results:

Sterile, 29.

Streptococci, 5.

Staphylococci, 11.

Sarcina, 2.

Gram-negative bacilli, 3.

Mixed staphylococci and streptococci, 5.

Total, 55. None of the healthy controls showed gram-positive diplococci.

Cultures saved for identification were transferred to the following mediums: gelatin, litmus milk; plain nutrient agar, Russell's double sugar agar, brain heart infusion agar slants and plates, dextrose agar, blood agar; plain nutrient, saccharose, lactose, dextrose, adonite, arabinose, dextrin, salicin, raffinose, dulcitol, xylose, galactose, mannose, mannitol, inulin and maltose broths; and Hiss inulin serum water. All carbohydrate broths were made by adding 1 per cent of the sugar to a base of brain heart infusion broth. Phenol red was used as an indicator and all mediums were adjusted to a pH of 7.4. Bile solubility tests were run on the preliminary twenty-four hour brain heart infusion broth cultures.

All the diplococci gave the cultural characteristics of pneumococci. All sugars, including inulin, were fermented with the production of acid but no gas. There was no liquefaction of gelatin. Litmus milk became acid with coagulation on the fourth or fifth day. There was no gas in dextrose agar, and Russell's double sugar gave an acid slope, alkaline butt and no gas. On blood agar, colonies appeared small, discrete and glistening with a slight area of green around each colony. There was a very scanty growth or none at all on plain nutrient agar or broth. All ninety-six cultures were bile soluble.

Twenty-seven cultures, morphologically and culturally identical to and typical of pneumococci, were injected into the peritoneal cavity of white mice. The cultures were all moderately virulent for mice, two of

them died in two days, the other twenty-five became sick showing toxic effects. The same organisms were recovered from the peritoneal exudate. These organisms in direct smear had shown a faint capsule, which was lost on repeated cultivation and was not regained by mouse passage. Agglutination tests were run, each of the twenty-seven cultures being used as an antigen against each of the thirty-two types of antipneumococcus serum. All cultures agglutinated with type XIV antiserum. No cross agglutination with any other type was noted. Cooper, and others¹³ in a study of the twenty-nine types usually spoken of as type IV group found that type XIV was one of the most prevalent types found in the pneumonias of children and that this type was moderately virulent for mice. This corresponds with our observations in regard to pathogenicity of type XIV for mice.

After finding that these cultures were type XIV, we next tested the agglutinating power of the serum of a patient who had repeatedly given positive urine cultures for diplococci and who had had a urinary tract involvement for some time but whose blood cultures were negative. Twelve pure cultures, including one isolated from the patient himself, were used against this serum. Positive agglutination with undiluted serum, serum diluted 1:10 and 1:20 was obtained with each culture except one, which agglutinated only with undiluted serum. As a control we used the serum of an individual who gave no history of pneumonia or pneumococcal infection of any kind against the same twelve cultures. No agglutination with undiluted serum was obtained with ten of the cultures; the other two showed only a slight agglutination after an hour's incubation.

In three of the ninety-six cases in which we demonstrated typical diplococci in the urine, we were able to recover the same organism from the blood. Dr. William H. Bailey of the clinical staff and pathologist of Wesley Hospital, Oklahoma City, furnished us with a culture obtained from the blood of a patient suffering from a paranephric abscess. This culture proved to be a typical diplococcus identical with the others with which we were working. He also sent us a culture from the urine of the same patient, which contained the same organism. At operation the same organism was recovered from the pus in the abscess. In four cases, one of which gave a positive blood culture, we found the organism in infected teeth. After the offending teeth were removed we were no longer able to isolate the organisms from the urine, and symptoms disappeared.

Autogenous vaccines were prepared from the cultures obtained from each of the ninety-six positive cases. These vaccines were administered by Dr. Akin with very favorable results to date. In nineteen cases in which the vaccine has been administered three months or longer we can no longer recover diplococci from the urine, and Dr. Akin reports that symptoms have disappeared in these cases. Many of these infections, which have now cleared up, have been of long standing chronic character, one patient giving a history of having had the infection fifteen years. This phase of the work is still in progress.

SUMMARY

Cultures of urine from 329 persons suffering from genito-urinary tract infections have been positive in ninety-six cases (approximately 30 per cent) for a

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gram-positive lancet shaped diplococcus which by culture and serologic tests proved to be *Diplococcus pneumoniae*. In twenty-seven of the cases we have typed the organism and found it to be type XIV. The remaining sixty-nine cultures, while not typed, are definitely pneumococci, being bile soluble and fermenting inulin as well as giving the other typical cultural characteristics. Fifty-five controls proved negative for pneumococci.

Autogenous vaccines have given encouraging results to date. Nine of the cases with which we worked gave positive cultures of the diplococcus from sources other than the urine; four from the blood and the urine and four from the teeth and the urine; one from paraneurphic abscess, blood and urine.

CONCLUSION

Thus far we have been able to demonstrate only type XIV pneumococcus, but it is highly probable that other types may be involved.

Infections of the urinary tract due to pneumococcus occur and are relatively common.

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PNEUMATURIA IN DIABETES MELLITUS

REPORT OF A CASE

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Pneumaturia may be defined¹ as the passage of urine charged with air or gas. Senator² in 1891 offered the first classification of pneumaturia, dividing it into three classes: (1) atmospheric air entering the urinary bladder as in instrumentation; (2) gases entering from hollow body cavities, especially from the intestine; (3) decomposition or fermentation of the urine causing gasification in the urinary bladder. The third group may be further divided into those with glycosuria and those without glycosuria. We are primarily interested in this communication with class 3, reporting a case of pneumaturia associated with diabetes.

HISTORICAL

Kelly and MacCallum³ in 1898 reviewed the literature and reported several cases of pneumaturia, none of which were associated with diabetes. A careful search of subsequent literature has failed to reveal a report on this subject in the American or English literature, although several German observers have reported cases. Briene de Boismont⁴ first mentioned spontaneous production of gas in the bladder in 1825 and considered it a secretion by the mucosa. Roache confirmed this and Chomel added the suggestion that the gas might be due to fermentation. Practically all cases reported up to 1860 were fistulous in character, but in that year Raciborski⁵ had a case not due to fistula and reported it as a spontaneous development in the bladder. He named it pneumo-uria. Keyes⁶ reported two cases of

pneumo-uria in 1882 in two men, aged 67 and 68 respectively, with hypertrophy of the prostate in which there had been instrumentation. Guiard⁷ first pointed out pneumaturia in diabetes in 1883 and reported four cases. Duménil⁸ and Thomas⁹ each reported a similar case. Müller¹⁰ in reporting pneumaturia in diabetes in 1888 gave the first analysis of the gas found, showing predominantly carbon dioxide, hydrogen and nitrogen. When gas was present the urine was acid, but ammoniacal decomposition interrupted and arrested the gasification. On standing, the sugar disappeared from the urine. Senator² reported a similar case associated with cystitis, the urine having the odor of a fermented yeast mixture. The reaction was always acid. The gas was largely carbon dioxide, and the fermented urine contained considerable alcohol on distillation. Yeast cells were found in the urine. Teschenmacher¹¹ reported three cases. Favre¹² in 1888 isolated a gas-forming bacterium at autopsy from the urine of a nondiabetic woman with cystitis and pyelonephritis. There was gas inflation of the bladder and ureters. This was the first attempt to demonstrate a causative agent. French authors subsequently reported the colon group and occasionally *Bacillus lactis-aerogenes* as causative agents, especially in the nondiabetic group. Luetscher¹³ was of the opinion that *B. lactis-aerogenes* was a rare cause of cystitis. Ernst¹⁴ in 1894 reported a case of diabetes presenting a yeast infection of the bladder. Fisch¹⁵ in 1898 reported pneumaturia in diabetes associated with yeast infection and cystitis. Müllern-Aspegren¹⁶ reported a case in 1921 of diabetes presenting prostatic hypertrophy associated with yeast infection and pneumaturia in a man, aged 73. He was cured on bladder irrigations. Two years later Tannenberg¹⁷ reported a case of diabetes presenting bilateral renal and vesical thrush infection but did not mention pneumaturia. Ota and Masuda¹⁸ stated that yeast infection of the bladder is not unusual in diabetic patients but is uncommon in those without glycosuria. They report a case in the latter category. Sharkey and Root¹⁹ reviewed 196 cases of infection of the urinary tract in diabetic patients coming to autopsy, reporting one case of bladder paralysis, but they do not mention pneumaturia or yeast infection.

Cystitis emphysematosa has been mentioned from time to time in association with diabetes. It does not concern us in this communication except to differentiate it from true pneumaturia. Cystitis emphysematosa is characterized by the presence of gas-containing vesicles and cysts in the wall of the urinary bladder. Sanes and Doroshow²⁰ report finding *B. coli* in the urine of a woman with diabetes.

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PREDISPOSING FACTORS

Summation of the cases of pneumaturia reveal fourteen cases associated with glycosuria. There was a history of instrumentation preceding the appearance of the gas in practically all cases and a marked increase in the quantity of the gas in the remainder. It is now agreed that instrumentation is an essential factor in the production of pneumaturia of this type. The urine was acid in the majority of cases preceding instrumentation. Later the reaction varied according to the nature of the organism introduced. The organism was not identified in the earlier cases, but in the later reports *B. coli*, *B. lactis-aerogenes* and yeast were the most frequent. The presence of residual urine offers a favorable medium for the growth of organisms. Other predisposing factors are vesical calculi and general debility with lowered body resistance. The susceptibility of the diabetic patient to infection is well known. The sugar present in the urine favors bacterial and saccharomycelial growth. This is evidenced by the more frequent occurrence of pneumaturia with glycosuria than with sugar-free urine.

On analysis the gas (Senator) was found to be carbon dioxide 9 per cent, hydrogen 57 per cent and nitrogen 35 per cent. When the gas was allowed to stand twenty-four hours the carbon dioxide content increased to 20 per cent and the hydrogen decreased to 44 per cent. The gas was odorless and clear. The urine was always acid when gas was present and neutral or alkaline when ammoniacal decomposition set in. The gas was due to fermentation with the production of butyric and lactic acids. Distillation of the urine yielded considerable alcohol.

SYMPTOMS

The symptoms are not striking. There may be a continuous desire to urinate as a result of the cystitis. The passage of air causes no pain but a tickling sensation and may be accompanied by a soufflé or explosive report. The gas does not pass until most of the urine is expelled, owing to the curve of the urethra. The urine may be cloudy and usually contains pus.

Recovery is rapid in many cases with lavage of the bladder. Death is due to infection of other organs such as pyelonephritis with uremia.

The fifteenth case, reported at this time, was observed at the Queens General Hospital:

REPORT OF CASE

History.—A white man, aged 52, admitted Dec. 28, 1935, to the medical service, complained of painful swelling of the left great toe. The family history was not contributory. The past history revealed a fall thirteen years previously in which the left testicle was injured, with residual swelling. He was treated in a Brooklyn Hospital three years before the present admission for diabetes, remaining in the institution two months. No treatment or diet had been followed since his discharge. Three days before admission the patient sustained an injury to the left great toe, which was followed by painful swelling and suppuration. No symptoms of diabetes were elicited at the time of admission. He complained of passing small amounts of urine but no pain. Nocturia amounted to four times during the night.

Examination.—On physical examination the patient was somewhat asthenic but not acutely ill. There was slight dependent edema but no dyspnea or cyanosis. The head and neck were normal. The lungs were clear. There was a systolic murmur at the apex of the heart. Blood pressure was 168 systolic; 100 diastolic. The bladder presented as a tumor mass extending from 2 to 3 cm. above the umbilicus; it was not tender and showed no tympany at this time. On rectal examination the prostate gland was not enlarged. Neurologic examination revealed superficial reflexes present and equal; deep reflexes were absent.

On admission, examination of the urine revealed: specific gravity 1.024, acid, sugar 4 plus, acetone none. Tests for butyric and lactic acids and alcohol were not performed. Microscopic examination revealed many white blood cells and red blood cells. Hemoglobin was 90 per cent, polymorphonuclears 67 per cent, lymphocytes 23 per cent. Blood and spinal fluid Wassermann tests were negative. The colloidal gold test was negative. Spinal puncture showed normal pressure, appearance and cell count. Roentgenograms of the chest showed a small pleural effusion at the left base. Roentgenograms of the pelvis were negative. A urine concentration-dilution test showed a variation of specific gravity from 1.012 to 1.017. Blood chemistry showed: sugar 363 mg. per hundred cubic centimeters of blood, urea nitrogen 15.1 mg., nonprotein nitrogen 39.1 mg.

Course.—The patient was placed on a diet of protein 60 Gm., fat 50 Gm., carbohydrate 200 Gm. with insulin 15-10-15 units. The patient voided small amounts but was catheterized daily. The course was afebrile until the twelfth day after admission, when the temperature rose to 101 F. and the following day to 103.8 F. There was a daily elevation to about 100 F., occasionally 101 F. the remainder of his illness. The urine was free of sugar during this time (shown in the table) and the patient was frequently in insulin shock, the blood sugar and carbon dioxide combining power of serum being the only guides

Subsequent Blood Chemistry

1/7/36	Blood sugar	318 mg. per 100 cc.; urine sugar, 0; acetone, 0
1/14/36	Blood sugar	466 mg. per 100 cc.; urine sugar, 2+, acetone, 0
1/18/36	Blood sugar	263 mg. per 100 cc.; urine sugar, 0; acetone, 0
	Urea	45.4 mg. per 100 cc.
	Creatinine	1.4 mg. per 100 cc.
	Nonprotein nitrogen	68 mg. per 100 cc.
	Carbon dioxide combining power	38.6 volumes per cent
1/20/36	Sugar	443 mg. per 100 cc.; urine sugar, 0
	Urea	38.2 mg. per 100 cc.
	Nonprotein nitrogen	71 mg. per 100 cc.
1/25/36	Sugar	91 mg. per 100 cc.; urine sugar, 2+
2/1/36	Sugar	224 mg. per 100 cc.
	Urea	122 mg. per 100 cc.
	Nonprotein nitrogen	170 mg. per 100 cc.

in the treatment. Blood pressure at this time was 125 systolic, 85 diastolic. The patient was seen several times by the genito-urinary service but owing to his condition cystoscopy was not done until twenty-eight days after admission. At cystoscopy the urine was milky in appearance and had a yeastlike odor. Microscopic examination at once revealed the presence of yeast bodies and innumerable white blood cells. The bladder was large and trabeculated, but sensation was normal throughout. There was a generalized inflammatory reaction of the mucosa. Indigo carmine (0.4 Gm.) injected intravenously failed to appear at either ureteral orifice in twenty minutes. Catheters met obstruction bilaterally at from 3 to 4 cm. and could not be passed farther. Cultures of the urine yielded yeast and *B. coli*. Roentgenograms several days later revealed an air bubble in the bladder and catheterization was productive of air bubbles, particularly terminally, and the urine still had the odor of yeast. The patient could void on standing up but not on lying down. He was transferred to the genito-urinary service at this time and bladder irrigation with sodium bicarbonate solution was instituted. Alkalis were given by mouth. This resulted in clearing up the urine, but the patient became comatose three days later and went rapidly down hill. He died in uremia Feb. 4, 1936, thirty-nine days after admission. Diagnosis at death was diabetes mellitus, pyelonephritis with uremia, acute cystitis and the presence of air in the bladder due to yeast infection.

Autopsy.—This was performed by Dr. Santora of the pathology department.

The body measured 5 feet 4 inches (162.5 cm.) and weighed 94 pounds (42.6 Kg.) and was markedly emaciated. The musculature was poorly developed. There was no fluid in the

serous cavities. The heart weighed 330 Gm. and the left ventricle was the site of an old infarct 2 cm. across with fibrosis and a mural thrombus. The myocardium was generally reddish brown. The left anterior descending coronary artery was completely occluded 2 cm. from its origin. The lungs weighed 550 and 660 Gm. respectively. There was a small patch of pneumonic consolidation in the left lower lobe. The right lung showed an area of caseation and cavitation with marked fibrotic changes. The liver, weighing 1,630 Gm., was not remarkable except for mild fatty infiltration. The right kidney weighed 280 Gm. The capsule stripped with ease, showing numerous cortical abscesses and an old healed infarct. Section revealed the cortex and medulla swollen, and numerous irregular well demarcated yellowish patches surrounding the pyramids. The areas were firm without softening. The pelvis was dilated and there were small ulcerations. The ureters were dilated and there were several strictures at the entrance of the ureters into the bladder. The bladder was collapsed, containing a small amount of milky white urine. The mucosa was injected and ulcerated. The prostate was slightly enlarged. The spleen weighed 250 Gm. and was congested. The pancreas weighed 50 Gm. and was markedly flattened and infiltrated with fatty tissue, there being little pancreatic tissue visible in the gross. The adrenal glands were not remarkable. The aorta showed moderate atherosclerosis.

Bacteriology.—Culture on Sabouraud's medium showed non-pathogenic yeast. Intravenous inoculation of the culture into rabbits produced no lesions in one and three weeks, respectively, on postmortem examination.

Microscopic Examination.—Sections of the lung showed a large abscess containing numerous polymorphonuclears and several large areas of caseation. Numerous small tubercles were noted. There were also areas of pneumonic consolidation. Section through the old infarct of the heart showed hyalinization and fibrosis. The muscle fibers were not remarkable. There were areas of focal necrosis in the liver, with granulation and vacuolization of the cytoplasm; the cells were swollen, occluding the sinusoids. The pancreas showed mainly fat tissue with little pancreatic tissue and included islet tissue. The aorta showed intimal thickening, with no destruction of the media.

The kidney showed large abscess areas with central necrosis but not complete dissolution of the tissue. There were many bacteria in the central portion. An area of polynuclear cell infiltration surrounded these areas. These abscesses were at the head of the papilla for the most part, and the intervening tissue was normal. Smears taken from the center of these areas at the time of autopsy and stained with the Gram stain, showed large, fat gram-positive bacilli and did not resemble *B. welchii* but were not cultured, and smaller gram-negative bacilli resembled morphologically the colon group.

The bladder showed thickening of the wall with occasional areas of lymphocytic infiltration of the submucosa and ulceration of the mucous membrane. The inflammatory reaction was not extensive in the section. There was some engorgement of the vessels.

The anatomic diagnosis was (1) acute suppurative cystitis, bilateral hydro-ureter; (2) acute suppurative pyelonephritis; (3) atrophy and fatty infiltration of the pancreas; (4) limited pulmonary bronchopneumonia; (5) pulmonary tuberculosis, limited and fibrotic; (6) coronary sclerosis with old occlusion and old myocardial infarct with mural aneurysm and mural thrombosis, (7) acute parenchymatous degeneration of the liver.

COMMENT

This case presents several interesting phenomena. The picture on admission was typical of diabetes with high blood sugar and glycosuria four plus. Because of the urinary retention, daily catheterization was performed, resulting in cystitis with disappearance of the sugar from the urine. Control of the diabetes was difficult, with alternating periods of insulin shock and hyperglycemia. The absence of sugar in the urine in the presence of an elevated blood sugar was due to fermentation of the urinary sugar with the production of butyric acid, lactic acid and carbon dioxide. This process made the urine consistently acid, further promoting yeast growth. Yeast organisms, apparently non-

pathogenic, were introduced into the bladder with catheterization, and the urinary sugar afforded an excellent culture medium. The production of carbon dioxide and hydrogen resulted in pneumaturia. Owing to the curve of the urethra, the gas was expelled toward the end of micturition. The patient was unable to void when reclining but could do so when erect. This may be explained on the basis of the air bubble forming at the vesical neck when the patient was lying down, inhibiting the action of the sphincter. The gas formed at the fundus of the bladder when the patient was erect. Roentgenograms confirmed the presence of air in the bladder, which is sometimes mistaken for gas in the bowel.

PATHOLOGY

The bladder showed a moderate generalized inflammatory reaction with injection of the vessels. The ulcerations of the mucosa observed at autopsy were probably terminal, as they were not observed at the time of cystoscopy eleven days before death. Non-pathogenic yeast infection produces little inflammatory reaction in itself but is frequently associated with pyogenic invasion. Pathogenic varieties, as *Oidium albicans*, result in the typical lesions. The strictures of the ureters are probably of long duration and not related to the present illness. They were undoubtedly contributory to the terminal pyelonephritis through mechanical obstruction. *B. coli* was cultured from the urine along with the yeast. Organisms morphologically resembling *B. coli* were observed on smears from the kidney abscesses, suggesting this organism as the pyogenic invader. The microscopic picture of the kidney lesions suggested recent origin, as there was incomplete dissolution of tissue in the central part of the abscesses. The firmness of the lesions in the gross supports this view.

The injection of the yeast culture intravenously into rabbits is a questionable test of virulence. No lesions were produced, nor was the health of the rabbits apparently affected. Mouse inoculation was unfortunately not done.

TREATMENT

Treatment consists in bladder lavage and is usually efficacious in clearing up the infection. The nature of the infection would determine the irrigating solution. In the colon group, acriflavine solution 1:5,000 or an acid reagent such as boric acid 4 per cent, or phosphoric acid 1 per cent has proved most useful. Yeast is cultured in an acid medium, indicating that an alkaline solution such as sodium bicarbonate would be of value. The ingestion of alkaline or acid substances and regulation of the diet further influence the urinary reaction.

PROGNOSIS

The uncomplicated cases clear up rapidly on irrigation. The pneumaturia disappears and sugar reappears in the urine. Needless to say, control of the diabetes aids in treatment. The presence of the infection, however, renders control of the diabetes difficult. Death is usually due to extension of the infection or to secondary invasion, such as pyelonephritis. This was true in the case reported. The urine cleared up at once with continuous bladder irrigation, but there was extensive pyogenic kidney involvement.

It is likely that the incidence of pneumaturia is greater than the number of cases reported would indicate. This may be due to the malady not being recognized or to failure to report the cases. In a perusal of the literature on diabetes, cases suggesting pneu-

maturia are noted from time to time. Jordan and Crabtree²¹ reported seven cases of bladder paralysis associated with diabetes, apparently neurogenic in character. Six of the cases presented paresthesias and neurologic signs, but the seventh was essentially negative neurologically. Roentgenograms of the abdomen in this case revealed gas in the bladder. It is possible that this may have been a case of pneumaturia associated with diabetes.

SUMMARY

Pneumaturia in a diabetic patient was due to a non-pathogenic yeast infection of the bladder. Fourteen cases of pneumaturia associated with diabetes mellitus were found in a review of the literature. It is thought that the incidence is greater than the number of cases reported would indicate and that many cases go unrecognized. Yeast is the most common organism concerned in the cystitis. Instrumentation usually precedes the infection. The diagnosis depends on the presence of gas bubbles in the urine and may be confirmed roentgenologically. Treatment by bladder lavage is usually curative. Death is due to concomitant infection, usually pyelonephritis.

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HEREDITARY FACTORS IN EPILEPSY

DIFFERENCES BETWEEN DETERIORATED AND NONDETERIORATED PATIENTS

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In attempts to unearth the etiologic basis of epilepsy no subject has been more thoroughly scrutinized than the rôle of heredity, and it may appear late in the day to add another contribution on this subject. Our reason for so doing is that a review of the literature has convinced us that such studies have only partial value because they have been based in almost all instances on institutional, deteriorated patients. Writers on the heredity of epilepsy have been mainly workers in hospitals and colonies, who had access only to epileptic patients sent there on account of deterioration or other psychosis, and there are good reasons for believing that these constitute a minority, perhaps a small minority, of persons with epilepsy. Since the studies of most writers were circumscribed by institution walls, the vast number of nondeteriorated persons with epilepsy who successfully adjust in the outside world have escaped observation and hence have been excluded from studies estimating the hereditary factors in epilepsy. In addition, the conclusions of some writers have been further befogged by acceptance as "epileptics" of many feeble-minded persons in whom seizures were a manifestation of gross developmental defect of the brain. Our purpose in the present communication is to describe the hereditary factors in a group of well adjusted, non-psychotic, nonfeeble-minded extramural persons with epilepsy and to determine whether these patients have a different heritage than institutional, deteriorated patients.

That hereditary factors play an important rôle in the etiology of epilepsy has been recognized by practically all writers. Thus Sieveking¹ found evidences of a neuropathic heredity in 11 per cent of cases, Reynolds² in 31 per cent, Eccheveria³ in 23 per cent, Berger⁴ in 32.3 per cent, Moreau⁴ in 32 per cent, Binswanger⁵ in 36.3 per cent, Dejerine⁶ in 66.8 per cent, Hammond⁷ in 28 per cent, Aronsohn⁸ in 32 per cent, Gowers⁹ in 40 per cent, Spratling¹⁰ in 56 per cent, Finckh¹¹ in 73 per cent, Siebold¹² in 55.2 per cent, Turner¹³ in 51 per

TABLE 1.—Percentage of Cases of Epilepsy in Institutional Patients and in Extramural Patients, in Which a Neuropathy Occurs in the Direct Line (Parents), Indirect Line (Grandparents, Uncles, and Aunts) and Siblings Only

	Snell Institutional Cases	Present Series
Direct.....	59.09	41.0
Indirect.....	16.77	10.4
Siblings only.....	5.4	6.6
Total.....	81.26	58.0

cent, Oppenheim¹⁴ in from 33 to 50 per cent, Kraepelin¹⁵ in 45.7 per cent, Starr¹⁶ in 35 per cent, Snell¹⁷ in 81.2 per cent and Muskens¹⁸ in 62 per cent.

The material used for this study consists of the records of 331 adult nondeteriorated patients with epilepsy.¹⁹ Of these, 266 were from the private practice of Dr. Hugh T. Patrick and sixty-five from the outpatient clinic of Northwestern University Medical School. In order to allow sufficient time for deterioration to occur, no patient was accepted for this study unless he had had seizures for at least six years. Of the 331 patients, 37.8 per cent had had the disease for from six to ten years; 24.3 per cent, eleven to fifteen years; 16.2 per cent, sixteen to twenty years; 8.9 per cent, twenty-one to twenty-five years; 6.1 per cent, twenty-six to thirty years, and 6.7 per cent over thirty years. Patients with defective mental development and with focal signs of neurologic disorder were not accepted for this study.

Of the 331 patients, 139, or 42 per cent, had an unimportant family history. In the remainder, or 58 per cent, there were evidences of a hereditary neuropathic taint.²⁰

1. Sieveking, E. H.: On Epilepsy and Epileptiform Seizures, London, John Churchill, 1858.
2. Reynolds, R. J.: Epilepsy: Its Symptoms and Treatment, London, John Churchill, 1856.
3. Eccheveria, M. G.: On Epilepsy, New York, William Wood & Co., 1870.
4. Quoted by Binswanger.⁵
5. Binswanger, O.: Die Epilepsie, Vienna, Alfred Holder, 1899.
6. Quoted by Turner.¹³
7. Hammond, W. A.: A Treatise on Diseases of the Nervous System, New York, D. Appleton & Co., 1890.
8. Aronsohn, O.: Heredität bei Epilepsie, Neurol. Centralbl. 13: 631, 1894.
9. Gowers, W.: Epilepsy and Other Chronic Convulsive Disorders, ed. 2, London, J. & A. Churchill, 1901.
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11. Finckh, J.: Beiträge zur Lehre von Epilepsie, Arch. f. Psychiat. 39: 820, 1904-1905.
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15. Kraepelin, E.: Psychiatrie, Leipzig, J. A. Barth, 1913, vol. 3.
16. Starr, M. A.: Organic and Functional Nervous Disorders, Philadelphia, Lea & Febiger, 1913.
17. Snell, O.: Belastungs-verhältnisse bei der genuinen Epilepsie, Ztschr. f. d. ges. Neurol. u. Psychiat. 70: 1, 1921.
18. Muskens, L. J. J.: Epilepsy, New York, William Wood & Co., 1928.
19. A statistical formulation of a part of this material along with other data has been reported previously (Paskind, H. A.: Extramural Patients with Epilepsy, Arch. Neurol. & Psychiat. 28: 370 [Aug.] 1932).
20. That is, evidences in the family of functional psychosis, psychoneurosis, nervousness, migraine, epilepsy, alcoholism, psychopathic personality, suicide or feeble-mindedness.

21. Jordan, W. R., and Crabtree, H. H.: Paralysis of the Bladder in Diabetic Patients, Arch. Int. Med. 55: 17-25 (Jan.) 1935.
From the Department of Nervous and Mental Diseases, Northwestern University Medical School, and the Minnie Frances Kleman Memorial Fund.

The writer whose data regarding heredity may best be compared with ours is Snell.¹⁷ In 345 cases he found evidences of a familial neuropathic trend in 81.26 per cent, a ratio 23.2 per cent higher than that found in our series. From this it seems reasonable to believe that hereditary neuropathic taint is more frequent in deteriorated, institutional patients than in nondeteriorated, well adjusted patients in the outside world.

A further comparison of Snell's data regarding heredity with those of the present series disclosed some interesting differences. In our series a neuropathic factor could be detected in the direct line (parents) in 41 per cent, in the indirect line (grandparents, uncles and aunts) in 10.4 per cent and in siblings in only 6.6 per cent. In table 1 we have compared these data with those for institutional patients. This table shows that the nondeteriorated patients show a smaller percentage of hereditary taint in the direct and indirect line. In the siblings, tainting is more frequent in the nondeteriorated patients (6.6 per cent to 5.4 per cent), but the difference is so small as to be of no statistical significance.

In the direct line (parents) Snell found psychosis in 5.96 per cent, nervous disorders in 17.15 per cent, of which 4.94 per cent were epilepsy, alcoholism in 24.15 per cent, apoplexy in 5.39 per cent, senile dementia in 0.28 per cent, psychopathic personality in 10.79 per cent and suicide in 0.85 per cent. How these data compare with those obtained in the present series is shown in table 2. Migraine and nervousness were more common

personality; in Snell's institutional patients this ratio was 10.79 per cent. It thus appears that the parents of the more malignant, deteriorated, institutional patients with epilepsy are much more heavily burdened with neuropathy than are the parents of the nonpsychotic extramural epileptic persons.

TABLE 4.—The Percentage of Frequency of Epilepsy, Insanity and Alcoholism as Hereditary Factors in Patients with Epilepsy as Given by Some Authors and Noted in the Present Series of Nondeteriorated Epileptic Patients

	Epilepsy	Insanity	Alcoholism
Sieveking ¹	11.1	....	....
Echeverria ³	10.4	....	....
Dejerine ⁶	21.2	16.8	51.6
Féré ²¹.....	....	....	38.3
Starr ¹⁶	7.0	....	9.3
Hammond ⁷	16.1	12.1	....
Aronsohn ⁸	18.0	....	....
Voisin ⁶.....	....	....	31.0
Binswanger ⁵	11.0	20.6	22.0
Gowers ⁹	30.3	13.6	....
Doran ²²	19.3	7.9	21.6
Spratling ¹⁰	16.0	7.0	14.0
Finckh ¹¹	24.2	15.9	18.9
Turner ¹³	27.2	5.4	3.1
Kraepelin ¹⁶	14.3	....	....
Muskens ¹⁸	35.7	14.5	8.0
This series.....	8.4	3.5	4.3

A study of the entire families in the present series also disclosed some significant differences from data obtained from similar studies by Snell. In our series the 331 nondeteriorated patients had 375 relatives showing evidences of a neuropathic taint. Of these it was found that 4 per cent had a psychosis, 38.4 per cent had migraine, 32.3 per cent showed nervousness, 14.4 per cent had epilepsy, 4.8 per cent were alcoholic, 4.3 per cent had apoplexy, 1.3 per cent had psychopathic personality, 0.8 per cent were suicides, and 0.5 per cent were feeble-minded. A comparison of these data with those obtained from a study of 502 relatives of Snell's institutional patients showed some interesting differences (table 3). The relatives of the nondeteriorated patients had more migraine and nervous symptoms but in the relatives of the institutional patients psychosis was more than five times as frequent as in the relatives of the present series; alcoholism was more than five times as frequent, and apoplexy, psychopathic personality and suicide, one and a half times, ten times and three times as common, respectively, as in the relatives of sane patients with epilepsy. The relatives of the institutional patients had epilepsy in 11.75 per cent; the relatives of the nondeteriorated patients had this disorder in 14.4 per cent, a difference of but slight statistical significance. From this it seems that not only the parents but all relatives of institutional patients carry a heavier load of neuropathy than do those of the epileptic persons who adjust and succeed in the outside world.

Most other writers on the heredity of persons with epilepsy have looked for the presence of epilepsy, insanity and alcoholism mainly in the families of their patients. Some paid attention to all three conditions and others to but one or two. In our series of non-deteriorated patients with epilepsy, epilepsy was found in the family in 8.4 per cent, insanity in 3.5 per cent and alcoholism in 4.3 per cent. How these figures compare with similar data of other writers is shown in table 4. A study of this table shows that figures for these values as given in the literature far exceed those

TABLE 2.—Percentage of Cases of Institutional Epileptic and of Extramural Epileptic Patients in Whom the Various Neuropathic Taints Occurred in the Direct Line (Parents)

	Psy- chosis	Nervous Dis- orders	Alco- holism	Apo- plexy	Senile De- mentia	Psycho- pathic Person- ality	Suicide
Institutional cases (Snell).....	5.96	17.15*	24.15	5.39	0.28	10.79	0.85
Present series.....	1.1	34.1 †	2.9	2.3	0	0.6	0

* Epilepsy occurred in 4.94 per cent.
† Migraine was noted in 20.8 per cent, epilepsy in 1.4 per cent and nervousness in 11.6 per cent.

TABLE 3.—Percentage Distribution of Neuropathy Among the Relatives of Institutional Patients with Epilepsy, and of Extramural Patients with Epilepsy

	Psy- chosis	Nervous Dis- orders	Alco- holism	Apo- plexy	Senile De- mentia	Psycho- pathic Person- ality	Suicide
Per cent of Institu- tional patients (Snell's 502 factors in 345 cases).....	22.51	28.28*	25.89	6.57	0.59	13.34	2.79
Per cent of present series (375 factors in 331 cases).....	4.0	35.6 †	4.8	4.3	0	1.3	0.8

* Epilepsy in 11.75 per cent.
† Migraine in 38.4 per cent, nervousness in 32.3 per cent, epilepsy in 14.4 per cent and feeble-mindedness in 0.5 per cent.

in the parents of the nondeteriorated patients, but psychosis was more than five times as frequent in the institutional patients as in the extramural ones, epilepsy more than three times as frequent, alcoholism more than eight times as frequent and apoplexy more than twice as frequent. In our series there were no patients whose parents had senile dementia or who had committed suicide, while in Snell's institutional patients senile dementia and suicide were not rare. In our series 0.6 per cent of the parents had psychopathic

21. Féré, Charles: Les epilepsies et les épileptiques, Paris, Felix Alcan, 1890.
22. Doran: Am. J. Insanity 160: 61, 1903.

obtained in the present study with two exceptions: Starr found that in his patients there was a history of epilepsy in the family in 7 per cent, or 1.4 per cent less than we found, but his patients were from private practice and outpatient clinics. Turner found alcoholism in 3.1 per cent of his patients, a value 1.2 per cent lower than ours. This table affords further evidence of the differences in heredity between patients institutionalized because of mental changes and those who are well adjusted outside an institution.

CONCLUSIONS

Studies of the hereditary factors in epilepsy have heretofore been gathered almost exclusively on the deteriorated institutional patients with epilepsy. These represent only those epileptic patients in whom mental changes developed necessitating commitment. The great numbers of nondeteriorated patients with epilepsy who do not deteriorate and who adjust and succeed in the outside world have heretofore played little if any rôle in the estimation of the hereditary factors in this disease. A study of the hereditary factors in a group of nondeteriorated, well adjusted, extramural patients with epilepsy indicates that they come of a stock carrying a lighter burden of neuropathy than do the deteriorated, institutional patients.

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HYPOGLYCEMIA WITH PARADOXICAL SUGAR TOLERANCE CURVE SIMU- LATING PEPTIC ULCER

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Advances in biochemistry have shown that the behavior of human beings is in a great degree dependent on the stability of metabolic processes. If the metabolism of an individual is in some manner disturbed, he responds with a reaction entirely abnormal and is said to be suffering from a "disease."

The importance of metabolism is generally known, yet the progress in our knowledge of infectious diseases and bacteria have in some way relegated the metabolic disorders into the background of clinical values. Disorders of metabolism produce symptom complexes as variable as individuals in their constitutional make up. Human beings are particularly sensitive to humoral changes. Such changes as excessive intake or loss of water will produce abnormal reactions. Changes in the mineral or colloidal constituents of the body, such as loss of salts or plasma proteins, will produce varied clinical pictures. An excess of sugar, as well as a lack of sugar, is reflected in a particular symptom complex.

The degree of variance that will bring forth an abnormal response differs among individuals. A drop in the sugar level of the blood plasma of one human being may not play as important a rôle in the clinical picture as a similar drop in another. The critical level of change in the constituents of the body humors is characteristically individual. To illustrate this point, three cases are cited.

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REPORT OF CASES

CASE 1.—History.—A white man, aged 35, presented himself because of pain in the epigastrium, severe in character and cramplike in nature. These symptoms occurred about two or three hours after meals and were relieved by the ingestion of food. Alkalis, however, were never efficacious. The pain would awaken him from sleep four or five times nightly. Sleep could be resumed only after the patient had partaken of some food. It is interesting to note that he was afforded instantaneous relief not only by bland foods but by sharp, spicy foods as well. If for some reason food was not available, he experienced a cold sweat, faintness, weakness and marked nervousness. There was no nausea, heartburn or vomiting present. At no time did he notice tarry stools. The pain was not localized but spread over the entire abdomen and was felt to start in the epigastrium.

Although this history dated back ten years to the onset, there were periods of complete remission of symptoms. Recurrence of attacks, while not distinctly seasonal, suggested certain periodic frequency. The patient felt that each attack was brought on by some indiscretion in diet, although alcohol was well tolerated. For a few weeks prior to his appearance for consultation the patient experienced marked nervousness, irritability, profuse sweating, marked twitchings, palpitation, shortness of breath and a sensation of heat. The outstanding symptom was an insatiable appetite, relieved only by frequent intake of food. This craving, if not satisfied, would result in severe abdominal pain.

The past history did not indicate any causative factors. The family history revealed no important facts bearing on this particular condition.

Physical Examination.—The patient appeared slightly over-nourished, nervous and apprehensive, with twitchings of the facial muscles and shoulders. Warm, moist hands with a fine tremor in the fingers were evident. There was a profuse sweat over his face and an anxious, glassy stare in his eyes. The pupils were slightly dilated, but equal and regular, and reacted to light and in accommodation. The eyegrounds were normal. There was a slight lid lag.

The blood pressure was 150 systolic, 110 diastolic. Heart sounds were regular in rate, rhythm and force, with no murmurs audible and not enlarged to percussion. The lungs showed no evidence of pathologic change. Abdominal exam-

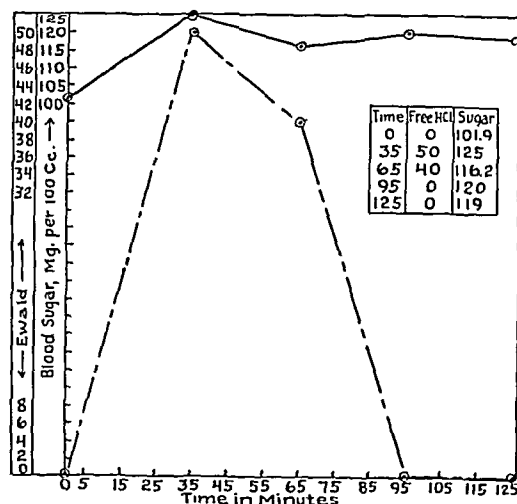


Chart 1 (case 1).—Free hydrochloric acid and blood sugar curves after 200 cc. of 5 per cent ethyl alcohol. Note blood sugar tolerance test, with simultaneous Ewald fractional gastric analysis.

ination elicited no palpable masses and no tender areas. The extremities were normal. Reflexes were slightly hyperactive.

Laboratory Examination.—Gastro-intestinal study disclosed the stomach and duodenum normal in size, shape, position and contour. There was, however, marked hypermotility of the stomach. The duodenal curve was moderately exaggerated. This was interpreted as possibly due to an abnormally large head of the pancreas.

Stool examination revealed no evidence of blood.

Examination of the gastric contents on a fasting stomach after a test meal of 200 cc. of 5 per cent ethyl alcohol plus five drops of methylene blue disclosed the free and total acid curves shown in chart 1.

Blood sugar determination showed a fasting blood sugar of 115 mg. per hundred cubic centimeters of blood. A sugar tolerance test determined by giving the patient 50 Gm. of dextrose on a fasting stomach and then determining the blood sugar level at half-hour intervals for two hours disclosed readings of 115, 85, 95 and 99.5 mg. per hundred cubic centimeters of blood (chart 2).

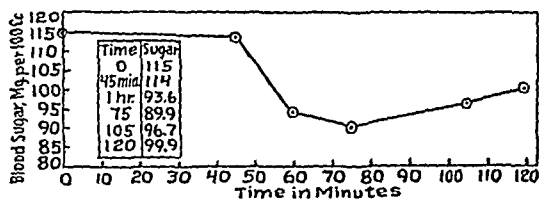


Chart 2 (case 1).—Sugar tolerance test: blood sugar curve after 50 Gm. of dextrose. Note the downward slope of the curve instead of the normal upward slope.

The basal metabolic rate revealed readings of plus 29 and plus 32 respectively. These figures were obtained before treatment was started. After one week under treatment, examination was repeated and a reading of only plus 4 was obtained.

The blood count gave normal results in all its phases.

Urine examination was negative for any pathologic constituents.

CASE 2.—A woman, aged 20, presented herself with a history of sharp, generalized epigastric pain. For the past two years this pain recurred every two hours and was relieved by foods but not by alkalis. It mattered little as to the type of food. Highly seasoned foods, condiments or alcohol were just as efficacious. Sweets in the form of candy were never observed to be helpful. The patient was short and of a hypopituitary type. Physical examination did not disclose other pertinent manifestations.

Complete laboratory examination revealed nothing relevant with the exception of the following:

1. Fractional gastric analysis disclosed a distinct hypo-acidity.

2. A gastro-intestinal series showed a perfectly normal stomach and duodenum.

3. The sugar tolerance test showed a fasting blood sugar of 67. One hour after the administration of 100 Gm. of dextrose the blood sugar dropped to 62 mg. Two hours after the administration of sugar it dropped to 53 mg. and the three hour specimen gave a reading of 50 mg. per hundred cubic centimeters of blood.

The patient responded poorly to the Sippy diet, carbohydrate diet and protein foods. However, on a high cholesterol diet the symptoms promptly subsided with no recurrence of the complaint. A repeated sugar tolerance

test after treatment by a high fat diet disclosed a normal curve (chart 3).

CASE 3.—A young woman presented herself with complaints similar to those of the second patient.

Physical examination was entirely negative.

Laboratory examination revealed:

1. Absence of gastric or duodenal lesions on x-ray examination.

2. Acid curves showing distinctly low values for the free and total acidity.

3. A bizarre sugar tolerance curve showing a fasting blood sugar of 85 mg. per hundred cubic centimeters of blood. One

hour after the administration of 100 Gm. of dextrose it rose to 94 mg. It then suddenly dropped to 54 at the two hour specimen and at the three hour examination gave a reading of 63 mg. per hundred cubic centimeters of blood.

The foregoing cases are some of a group that have been observed in our clinic for the past two years. These were chosen because they resembled most closely a condition which has been observed to be confused with and which simulates peptic ulcer. It is not unusual for one who has the privilege of seeing a large number of cases of gastro-intestinal disorder to be confronted with a group of patients who have symptoms interpreted as those of peptic ulcer and in whom roentgenologically no evidence of such ulcer is disclosed. Peculiarly enough, these patients respond to treatment by bland diet in the same manner as those with true ulcer, yet there are substantial differences in the behavior of the former group of patients as compared with the latter:

1. While the pains are relieved by frequent feedings, the diet may contain highly spiced and seasoned foods which are anathema to the true ulcer. Foods such as highly flavored sauces, condiments and alcohol are tolerated. Alkalis, on the contrary, do not offer relief.

2. While periodic frequency and seasonal recurrence of pains are associated with the true ulcer, they are not characteristic of this condition.

3. These patients bear their pain continuously, while it is infrequent for a true ulcer, except in the chronic, calloused, penetrating type, to cause unremitting pain throughout the year.

4. A more distinguishing characteristic of this group is the recurrence of pain four or five times a night, from which relief is to be had only after the ingestion of food.

5. While hyperacidity is a frequent accompaniment of peptic ulcer, as seen in chart 1, these patients show a decided tendency to diminution in acidity even to the point of achlorhydria.

While the differences outlined distinguish these two groups of cases as distinct entities, a still more positive and characteristic finding of the first group is its tendency to hypoglycemia. This hypoglycemia is elicited particularly on the administration of sugar. The normal individual, as well as the ulcer patient, responds with the usual orthodox positive curve on administration of 50 or 100 Gm. of sugar on a fasting stomach, while this particular group of patients displays a unique response. The curve takes on a definitely negative characteristic; i. e., instead of the sugar level rising and reaching its maximum at the end of from one and a half to two hours and then receding to normal, the curve in this group descends to a low level of 85 at the end of one and a quarter hours and then gradually ascends, never attaining the normal. While 85 mg. per hundred cubic centimeters of blood is not quite a hypoglycemic condition, still in some patients it may be sufficiently low to provoke symptoms of hunger and cramps. Again, it is not so much the hypoglycemia but the tendency

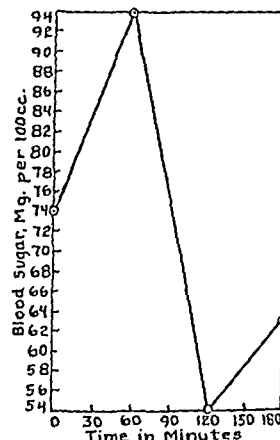


Chart 4 (case 3).—Sugar tolerance curve after 100 Gm. of dextrose, May 28, 1935.

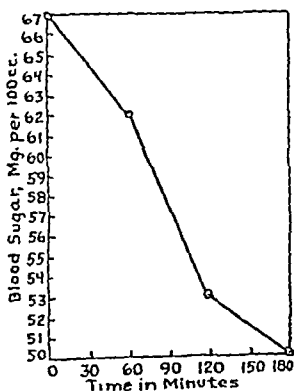


Chart 3 (case 2).—Sugar tolerance curve after 100 Gm. of dextrose given by mouth, July 11, 1935.

toward it, or the hypoglycemic curve initiated by the administration or ingestion of dextrose, which especially singles out these patients.

It may be assumed from the reaction of this group of patients to the sugar tolerance test and from the display of symptoms when the sugar level falls below a certain critical point that these patients differ from the normal in two distinct respects: first, their abnormal response to the ingestion of sugar and, second, their relationship to the critical level of blood sugar content at which symptoms are evidenced, which in this group of patients is higher than in the normal. These patients, unlike normal individuals who can adjust themselves with a certain degree of equanimity to changes in the blood sugar level, are prone to respond violently when their critical level is reached.

No attempt is made here to explain this apparently interesting observation. It may very well be that these individuals are constitutionally the subjects of an overactive pancreas or that they respond with an excessive overproduction of insulin on the ingestion of carbohydrates. Also it may be possible that in these patients carbohydrates are not converted into glycogen by the liver but instead are oxidized at once in the tissues. On the other hand, it is just as likely that glycogenesis takes place in a normal manner but that there may be some difficulty in the conversion of glycogen from the liver into available sugar. Just as the action of insulin is a moot question, so is the biochemical process involved in this particular observed anomaly.

That there is in this condition an increase in the oxidative processes of the body is shown by the high metabolic rate and the symptoms of tachycardia, excessive sweating, tremor, nervousness and eye symptoms—true indications of a hyperactive thyroid. Yet, one need not necessarily construe causal relationship between these symptoms and exophthalmic goiter, for it is quite conceivable that an increase in the oxidative processes of the body need not necessarily be the result of hyperthyroidism. As it happens in this case, the rapid oxidation of dextrose due to an oversecretion of insulin, with a consequent increase in the metabolic rate, may very well simulate an overactive thyroid but be entirely independent of it. In the present status of the knowledge of internal secretion, one cannot tell how great a part an overactive pancreas may play in calling forth an overactivity on the part of the thyroid.

It is not entirely without evidence, however, that one attributes the symptoms of increased metabolism to an overactive pancreas rather than to an overactive thyroid, for in the management of these cases it was observed that no particular attention to the thyroid was necessary to alleviate these so-called thyroid symptoms. Simple avoidance of overstimulation of the islets of Langerhans by withdrawal of carbohydrates from the diet definitely reduced the metabolic rate to plus four within a short while. Furthermore, even the administration of a diet high in proteins maintained a high metabolic level. This was interpreted as being the result of two factors: (1) the specific dynamic action of proteins themselves in raising the metabolic rate, and (2) the fact that proteins contain 52 per cent of carbohydrates, which in itself is sufficient to overstimulate the pancreas. Furthermore, when these patients were placed on a diet poor in carbohydrates and proteins and high in fat content, the basal metabolic rate was at once seen to drop and all the patient's symptoms were ameliorated. It is surprising to see with what gratification these patients, after years of unsatisfac-

tory treatment for ulcer, report complete relief from symptoms.

Just how the administration of a high fat diet can explain the reduction in the basal metabolic rate and the alleviation of symptoms in these patients is not clear. Much biochemical study, as well as further clinical observation, remains to be done to elucidate many points in this interesting clinical picture. While an insufficient number of cases have been studied, this case serves to bring to the attention of the profession a condition which demands consideration and thought whenever one encounters a peptic ulcer which is resistant to the ordinary orthodox treatment. Patients who present themselves with symptoms of peptic ulcer, in whom roentgenologic evidence is lacking, should always be studied from the point of view of a possible metabolic disorder of the nature described.

Not too infrequently is the roentgenologist blamed for disagreeing with the clinician when he cannot find definite evidence of an ulcer. Still more frequently is he coerced into reporting an ulcer by the insistence of the clinician or the suggestiveness of the history. It is hoped that, with time, developments will provide more basic evidence on these significant observations.

CONCLUSIONS

1. In cases of hypoglycemia with an abnormal response to sugar tolerance tests there was a similarity of symptoms produced by this condition with the symptoms of peptic ulcer.

2. There are criteria which distinguish this condition from peptic ulcer.

3. Further work on this condition is to be reported.
66 Park Avenue.

METHYL CHLORIDE (REFRIGERATOR) GAS POISONING

AN INDUSTRIAL HAZARD

ALBERT WEINSTEIN, M.D.

NASHVILLE, TENN.

Methyl chloride gas is one of the most popular refrigerants used in mechanical refrigeration. Poisoning by this gas attracted sufficient attention in 1929 to warrant an investigation by the American Medical Association. During that year, in a relatively short period, the occurrence of twenty-nine instances of this form of intoxication in Chicago was reported.¹ Ten patients of this group died. The report of the Committee on Poisonous Gases of the American Medical Association² included certain recommendations for the control of that hazard. It may be inferred from the sparsity of reports³ of poisoning by methyl chloride since that time that the advice of the committee had been followed. The appearance of two new cases of methyl chloride poisoning, however, emphasizes the fact that this industrial danger still exists.

From the Department of Medicine, Vanderbilt University School of Medicine.

1. Kegan, A. H.; McNally, W. D., and Pope, A. S.: Methyl Chloride Poisoning from Domestic Refrigerators, *J. A. M. A.* **93**: 353-358 (Aug. 3) 1929.

2. Household Mechanical Refrigeration, Report of the Committee on Poisonous Gases of the American Medical Association, *J. A. M. A.* **94**: 1832-1838 (June 7) 1930.

3. Porteous, H. B.: Toxic Effects of Methyl Chloride Gas, *Brit. M. J.* **1**: 414, 1930. Sharp, B. B.: Toxic Effects of Methyl Chloride Gas, *ibid.* **1**: 336 (Feb. 22) 1930. Gorham, A. P.: Medical Aspects of Methyl Chloride, *ibid.* **1**: 529, 1934. Van der Kloot, Albert: Methyl Chloride Poisoning, *Illinois M. J.* **65**: 508-509 (June) 1934. Birch, C. A.: Toxic Effects of Methyl Chloride Gas, *Lancet* **1**: 259 (Feb. 2) 1935. Roth, O.: Schweiz. Ztschr. f. Unfallk. **17**: 169, 1923.

REPORT OF CASES

Two white men, 44 and 28 years of age, were engaged in repairing an air conditioning plant located in the basement of a business concern. Ventilation was poor but considered adequate. After two hours of work the older patient noted headache, dizziness and fatigue. He accordingly quit work. The younger man continued to work an additional two hours, at the end of which time he too was forced to stop.

CASE 1 (aged 44).—When seen four hours after exposure, the patient was apathetic but answered questions intelligently. There was no cyanosis or dyspnea. He was nauseated, had vomited, and was having cramping abdominal pain. His temperature was 98 F. and his pulse rate was 96. The blood pressure was 134 mm. of mercury systolic and 80 diastolic. He was having attacks of vertigo, during which he shielded his eyes with his hands, and his face became flushed. However, no changes were noted in either the blood pressure or the pulse rate. The neurologic examination was negative except that there was a coarse tremor of the hands. The general examination likewise revealed no abnormalities save for an odor of the breath similar to that of chloroform. Urine examination revealed an acid specimen with a specific gravity of 1.010; tests for albumin and sugar were negative. The patient was given large amounts of bromide by rectum and spent a comfortable night. The following day he was free from complaints save for occasional attacks of vertigo.

The erythrocytes numbered 5,650,000 per cubic millimeter of blood; hemoglobin 18 Gm. per hundred cubic centimeters; leukocytes 8,100, 54 per cent of which were neutrophils, 7 per cent monocytes and 39 per cent lymphocytes. The fixed smear revealed definite anisocytosis with larger cells in preponderance. The blood nonprotein nitrogen was 28 mg. per hundred cubic centimeters. The icterus index was 3 and the van den Bergh test resulted in a very slight delayed reaction. A urine specimen contained 25 mg. of formic acid per liter. Three days later the patient was well enough to return to work although he felt very weak. This susceptibility to fatigue continued for approximately seven days. Examination then revealed no abnormalities.

CASE 2.—The second patient was seen at his home five hours after the onset of symptoms. He was desperately ill. Abdominal pain occurred in paroxysms and caused him to scream. He had attacks of vertigo every few minutes. These seizures, as in the first patient, were associated with flushing of the face, nausea and vomiting, but there was no change in the pulse rate or blood pressure. There was no cyanosis. Babinski's sign was present bilaterally and the deep reflexes were hyperactive. No other neurologic abnormalities were noted. The abdomen was rigid; the blood pressure was 130 systolic and 80 diastolic. The temperature was normal and the pulse rate 120. The odor of the breath was impressive and of the same character as noted in the first case.

He was given two doses each of morphine 15 mg. ($\frac{1}{4}$ grain) and atropine 0.4 mg. ($\frac{1}{40}$ grain) but no relief was obtained. Accordingly he was admitted to the Nashville General Hospital, where he received morphine (15 mg.) again and calcium chloride (1 Gm.), intravenously, together with a hypodermoclysis of 2,000 cc. of physiologic solution of sodium chloride.

The specific gravity of the urine was 1.017, and no albumin or sugar was present. The erythrocyte count was 4,300,000, hemoglobin 14.5 Gm. and leukocytes 8,650, of which 68 per cent were neutrophils. No abnormalities were noted in the fixed blood smear stained by Wright's method. The blood chemistry examination (expressed in mg. per hundred cubic centimeters) revealed nonprotein nitrogen 44, sodium chloride 338, sugar 90, calcium 15. The carbon dioxide combining power of the plasma was 37 volumes per cent. Lumbar puncture revealed the cerebrospinal fluid pressure to be 120 mm. of water. The fluid contained 8 cells and gave negative globulin and Wassermann tests. A urine specimen contained 19.2 mg. of formic acid per liter.

The condition of the patient remained essentially unchanged for twenty-four hours. He continued to experience severe paroxysms of pain in spite of the free use of morphine. During the first two days of the illness his temperature varied between 99 and 100. He became slightly jaundiced; the icterus index was 10 or above for four days. Because of acidosis and hypochloremia, 3 per cent sodium bicarbonate solution and 10 per

cent dextrose in saline solution were given intravenously. Since he apparently was excreting some product of the gas through the expired air, rebreathing exercises with 5 per cent carbon dioxide were employed every three hours. This was continued for three days until the odor of the gas had disappeared. The blood sodium chloride content rose on the third day of hospitalization to 495 mg. per hundred cubic centimeters and the nonprotein nitrogen returned to normal. The carbon dioxide combining power rose to 50 volumes per cent.

There was no evidence at any time of suppression of urine and there was no diarrhea.

After three days the Babinski's signs, hyperreflexia, paroxysms of vertigo, nausea, vomiting and abdominal pain disappeared. He remained in bed a total of eight days, at the end of which time the physical examination gave normal results save for moderate tachycardia and slight elevation of the diastolic blood pressure.

COMMENT

Methyl chloride gas was the cooling agent used in the air conditioning plant which these men repaired. This gas is extensively used as a refrigerant. It has many advantageous features besides its low boiling point ($-23.7^{\circ}\text{C}.$); it is stable, noncorrosive to metals, relatively noninflammable, nonexplosive, noninjurious to foods, furs or textiles, and may be used in low pressure systems. Unfortunately the gas is absolutely nonirritating and practically odorless. Thus the victim of exposure is poisoned without warning.

After the initial report⁴ in 1914, poisoning by this gas was noted very infrequently until 1927. Baker⁵ in 1927 reported twenty-one cases observed among workers in a refrigerating plant in Evansville, Ind. The symptoms in order of frequency of occurrence were drowsiness, vertigo, staggering gait, mental confusion, a feeling of "walking on air," ptosis of the eyelids, anorexia, nausea, visual disturbances, dysphagia, hiccup and tremors. In the most severe cases reported, convulsions occurred. Most of the patients completely recovered in from fourteen to twenty-one days, although one had a persistent foot drop. Because the gas was similar chemically to methyl alcohol, which is excreted in part as formate in the urine, Baker tested the urine of these patients and found formic acid present.

In 1929 Kegal, McNally and Pope¹ reported a group of twenty-nine cases in which poisoning occurred as the result of a leaking refrigerating system in Chicago apartment houses. Ten of these patients died. The symptoms of the more severe cases resembled acute food poisoning. The characteristic postmortem changes were pulmonary edema, dilatation of the heart, areas of degeneration in the liver and kidneys, and petechial hemorrhages scattered throughout the pleura, endocardium and dura.

Following this report the American Medical Association in 1930 appointed a committee to investigate the problem. The committee criticized all the commonly used refrigerants—ammonia, sulfur dioxide, carbon dioxide, ethyl chloride and methyl chloride—and recommended the development of a nontoxic gas; in addition it urged the adoption of a national code of supervision for refrigeration plants.

It is apparent that the ideal refrigerant has not been discovered. The experience with the patients reported herein indicates that supervision of installation and operation of refrigerating plants is not universally practiced. There is nothing to indicate that state or federal health agencies have attacked this important industrial and domestic health hazard. Recently a nontoxic

4. Gerbis, H.: München. med. Wchnschr. 61: 879, 1914.
5. Baker, H. M.: Intoxication with Commercial Methyl Chloride. J. A. M. A. 88: 1137-1138 (April 9) 1927.

refrigerant, dichlorodifluoromethane, has been developed, but I have been unable to discover the present extent of its use. Certain manufacturers have added small amounts of irritating gases (1 per cent acrolein [methyl chloride-A, E. I. Dupont de Nemours & Co.]), to refrigerants employed by them, so that individuals exposed to its dangers may be aware immediately of its presence. As pointed out by the committee of the American Medical Association, such warning agents are useful in the case of normal adults but do not guarantee safety and are of little or no value to infants, invalids, the insane, or persons under the influence of alcohol.

As has been emphasized, pure methyl chloride is odorless. The odor of the breath of patients poisoned by methyl chloride is characteristic and it persists for some time after the exposure to the gas (for four days in one of our cases). It is strikingly similar to that of chloroform. In considering the source of this odor, the possible products of oxidation and hydrolysis of the gas have been reviewed. It seems likely that the odor is due to either methyl alcohol (CH_3OH), formed as the result of hydrolysis of the methyl chloride (CH_3Cl), or acetone associated with the acidosis, or both. Such an explanation is compatible with the clinical observation that early symptoms of poisoning simulate those induced by the inhalation of an anesthetic gas and the late manifestations resemble those of methyl alcohol intoxication. Partial oxidation of methyl alcohol to formic acid (HCOOH) and its excretion by the kidney constitute an explanation for the presence of formic acid in the urine. It has been shown⁵ that the quantity of formic acid excreted parallels the severity of the intoxication.

These cases are reported as important examples of industrial poisoning. The hope is entertained that, by diffusing knowledge of this hazard, incapacitation and even death may be prevented. It is desirable that the hazards of mechanical refrigeration should come under the supervision of official public health agencies.

SUMMARY

1. Two new cases of poisoning by methyl chloride (refrigerator) gas were observed.
2. Methyl chloride poisoning constitutes a hazard to which there is extensive exposure.
3. Federal, state and local health agencies should exercise effective control of refrigerants.

Mountains and Sun Baths.—The sun bath being always inseparable from the air bath, the quality of this air ought necessarily to play an important part. It is easy to understand that if the sun bath is taken in a stimulating air its action will be much more favorable. On the contrary, if the sun bath is applied in a heavy air, its action will be depressing on the organism. For that reason the treatment by natural sunlight practiced in the mountains is particularly efficacious. One knows, on the other hand, that the radiation from the sun is more intense at an altitude where the air is purer than in the plains where the damp, dust and smoke absorb a part of the sun's rays. Another advantage in the mountains is that the sun bath can be taken at all seasons. If the use of the natural light in winter is impossible in the plains, this season is especially favorable in the hills, where the sun shines without interruption during long intervals, and where the intensity of these rays is increased by the reflection on the snow. It goes without saying that heliotherapy will be more efficacious there if it is applied in places well situated, protected from wind, and well organized for sun treatment.—Rollier, Auguste: *Natural Sunlight in the Treatment of Tuberculosis*, *M. Press & Circ.* supplement, Sunlight, April 7, 1937, p. 9.

Clinical Notes, Suggestions and New Instruments

SUBCUTANEOUS RUPTURE OF THE TRACHEA

ALOYSIUS P. RIEMAN, M.D., JERSEY CITY, N. J., AND ALFRED S. GOLDSMITH, M.D., NORTH BERGEN, N. J.

Perforating wounds of the trachea due to indirect injury are unusual. References in the surgical literature are few, particularly when a cure has followed treatment. Recently Tixier¹ reported a case from France which resulted from an automobile accident five hours previously. The trachea was found completely severed transversely, in addition to a longitudinal posterior tear. The patient died sixty hours after operation. Graham¹ mentions four cases in which recovery followed the treatment that was instituted.

REPORT OF CASE

T. R., a white boy aged 7 years, was brought to the hospital July 31, 1936, following a fall from a bicycle in which the lad struck his neck against the handle bars. On admission he was markedly cyanotic. Subcutaneous emphysema was most pronounced, extending from the head to the knees. The nurse's notes described the patient as being "ballooned out." His past medical history and family history were irrelevant. The emphysema was so marked in the head that the eyelids bulged forward, completely occluding the eye. The contour of the neck was lost. Of interest was the fact that there was no external evidence of trauma. Another interesting feature was the fact that the respiratory and pulse rates were not unduly elevated, being 22 and 110, respectively. The temperature was 99.4 F. by rectum. It was felt that the trachea was torn and that air was being forced into the subcutaneous tissues.

The patient was immediately taken to the operating room for tracheotomy. After infiltration with 1 per cent procaine hydrochloride, a midline incision was made from the level of the hyoid to the episternal notch. The soft tissues were retracted and hemostasis was observed. Exploration revealed an opening in the right side of the trachea about 1 cm. below the cricoid cartilage in the region of the third tracheal ring. It was situated laterally so as to be contiguous with the carotid sheath. It was felt that the opening would heal if the air had a greater outlet nearby. During the exploration the patient became unexpectedly irrational and profoundly cyanosed, and suddenly ceased to breathe. A tracheotomy was quickly performed, which included the second and third cartilaginous rings. Artificial respiration was instituted, and with dramatic suddenness the patient's color returned as his respiration resumed its function. A drain was placed down to the lateral opening in the trachea, and the soft tissues were approximated in the usual manner. A firm outer dressing was applied.

The postoperative course was uneventful. The child was placed in a warm room. During the next six days, feedings were accomplished by means of a Levine tube passed through the nose to the stomach. After this time his general condition permitted feeding in the usual manner. The inner tracheal tube was kept patent by periodic removal and cleansing. Suction was used to remove the accumulated mucus from the tracheal tube and lower part of the trachea. The tube was removed on the twelfth postoperative day, after testing to assure a patent airway. No difficulty with respiration was encountered. The subcutaneous emphysema disappeared rapidly, at first from the face and upper extremities, and later from the chest and abdomen. By the sixteenth postoperative day, only a little emphysema was present in the scrotum. This terminal emphysema disappeared in another two to three days. By the twenty-sixth postoperative day the wound had healed and the patient was discharged cured. He has remained entirely well since then.

From the Surgical Service of the North Hudson Hospital, Weehawken, N. J.

1. Tixier, in *Yearbook of General Surgery*, E. A. Graham, editor, 1936, p. 179.

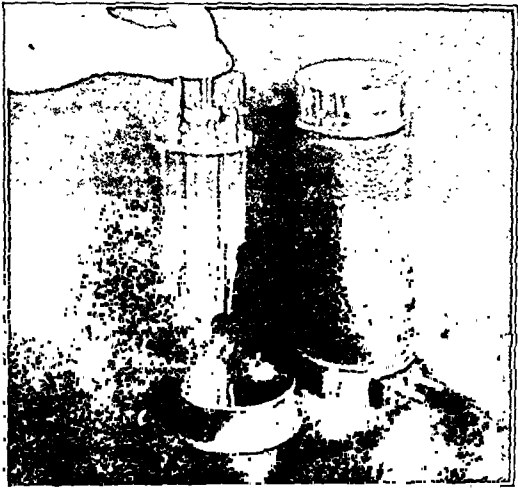
SUMMARY

In a case of subcutaneous rupture of the trachea following an indirect injury, a cure resulted after tracheotomy. Of especial interest in this case is the amount and extent of subcutaneous emphysema in its relation to the size of the tracheal rupture. A most unusual feature is the fact that there was no break in the skin, yet a small tracheal laceration resulted. It is this type of case which lends itself more satisfactorily to therapy than cases in which there is extensive trauma and little subcutaneous emphysema, as in the case of Tixier's mentioned previously.

A NEW TYPE PORTABLE STERILIZER FOR
SYRINGES AND NEEDLES

JAMES K. McSHANE, M.D., MIAMI, FLA.

This apparatus is an electric sterilizer for syringes, needles and minor operating kits. Being extremely portable and combining a method of not only sterilizing syringes and needles but also carrying them in a sterile condition, it permits the physician to have sterile syringes on hand at all times for any emergency or routine treatment in the patient's home that may be necessary. As it is smaller than a blood pressure apparatus this sterilizer can be carried at all times, and if necessary



Portable sterilizer for syringes and needles.

sterilization can be done in the patient's home. This, however, should be seldom necessary, as several sterile syringes and needles can be carried at the same time.

The sterilizer is a cylindric tube 6½ inches long and 2¼ inches in diameter and weighs 9 ounces. The base contains an electric unit which may be used on either alternating or direct current. As water is required to complete the circuit, it is entirely automatic in action and cannot burn out after boiling dry. The top is a friction cap containing a spring steam valve to allow the escape of steam, which is utilized in sterilizing the syringes and needles. Inside the case is a removable holder for placing the syringes and needles. The one illustrated holds one 10 cc. syringe, one 5 cc. syringe, two 2 cc. syringes and four needles of any size. Any combination of syringes can be carried by varying this holder.

METHOD OF OPERATION

The syringes are placed in the holder, which is then placed in the sterilizer. A minimum of 4 drachms of water is added, the lid replaced firmly and connection made with the electric circuit. Boiling occurs in less than a minute and is continued until all the water has been evaporated (usually twenty minutes or more), when the circuit is automatically broken. The sterilizer containing the now sterile syringes and needles can be placed in one's bag and is ready for instant use. By removing the carrier a 20 cc. syringe can be accommodated or catheters, rubber gloves and small operation kits can be sterilized and then carried in a sterile condition.

307 Ingraham Building.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION
OF THE FOLLOWING REPORT.
HOWARD A. CARTER, Secretary.

HIGH TENSION ELECTRO-SURGICAL UNITS
(MODELS C-920 AND C-975) ACCEPTABLE

Manufacturer: High Tension Corporation, 118 West Twenty-Second Street, New York.

These portable surgical units are designed for intermittent operation and are recommended for coagulation and desiccation. They may be used in hospitals, offices or other medical institutions. The evidence presented indicated that when units are



Fig. 1.—Model C-920
Electro-Surgical Unit.

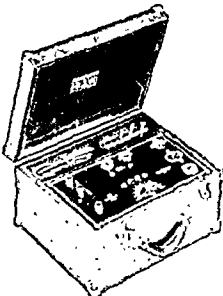


Fig. 2.—Model C-975
Electro-Surgical Unit.

operated under what may be regarded as actual clinical conditions the temperature rise of the transformer, the spark gaps or other essential parts was within the limits prescribed by the Council. The input power required for these units is between

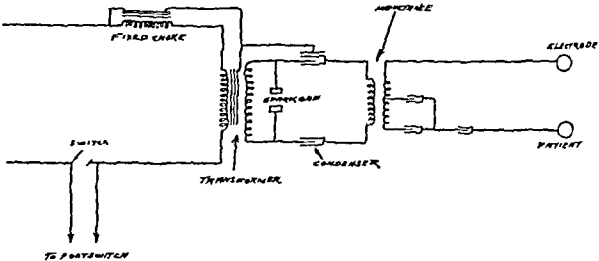


Fig. 3.—Schematic diagram of circuit (Model C-920).

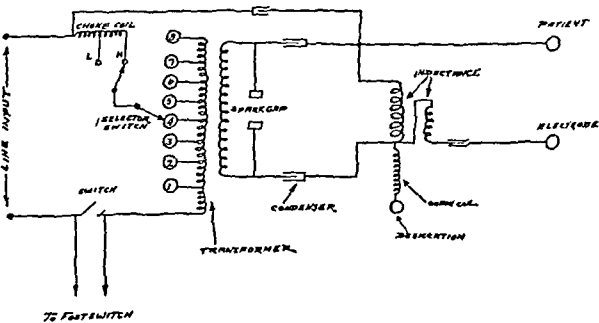


Fig. 4.—Schematic diagram of circuit (Model C-975).

135 and 230 watts. Their frequency is between 890 and 1,420 kilocycles per second, which corresponds to wavelengths between 211 and 37 meters. The investigator appointed by the Council used these units in a clinic acceptable to the Council and found them satisfactory when operated under actual clinical conditions.

In view of the favorable report, the Council voted to include the High Tension Electro-Surgical Units, Models C-975 and C-920, in its list of accepted devices.

THE ATLANTIC CITY SESSION

AMERICAN MEDICAL ASSOCIATION, EIGHTY-EIGHTH ANNUAL SESSION
ATLANTIC CITY, N. J., JUNE 7-11, 1937

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The eighty-eighth annual session of the American Medical Association will be held in Atlantic City, June 7-11, 1937.

The House of Delegates will convene at 10 a. m., Monday, June 7. In the House the representation of the various constituent associations for 1935, 1936 and 1937 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	1
California	7	New York	17
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	7
District of Columbia	1	Oklahoma	3
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	3	Tennessee	3
Kansas	2	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	6	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	5	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	1
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the general meeting to be held at 8 p. m., Tuesday, June 8. The sections will meet Wednesday, Thursday and Friday, June 9, 10 and 11, as follows:

CONVENING AT 9 A. M., THE SECTIONS ON

Practice of Medicine.	Pathology and Physiology.
Obstetrics, Gynecology and	Preventive and Industrial Medicine and Public Health.
Abdominal Surgery.	Urology.
Laryngology, Otology and	Orthopedic Surgery.
Rhinology.	

CONVENING AT 2 P. M., THE SECTIONS ON

Surgery, General and Abdominal.	Nervous and Mental Diseases.
Ophthalmology.	Dermatology and Syphilology.
Pediatrics.	Gastro-Enterology and Proctology.
Pharmacology and Therapeutics.	Radiology.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., Monday, Tuesday, Wednesday and Thursday, June 7, 8, 9 and 10, and from 8:30 a. m. to 12 noon, Friday, June 11.

CHARLES GORDON HEYD, President.
NATHAN B. VAN ETEN, Speaker, House of Delegates.
OLIN WEST, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA J. N. Baker, Montgomery. A. A. Walker, Birmingham.	LOUISIANA James Q. Graves, Monroe. W. H. Seemann, New Orleans.
ARIZONA J. D. Hamer, Phoenix.	MAINE William A. Ellingwood, Rockland.
ARKANSAS William H. Mock, Prairie Grove. William R. Brooksher, Fort Smith.	MARYLAND Alfred T. Gundry, Catonsville.
CALIFORNIA Elbridge J. Best, San Francisco. Lyell C. Kinney, San Diego. Fred B. Clarke, Long Beach. Charles A. Dukes, Oakland. Edward M. Pallette, Los Angeles. Robert A. Peers, Colfax. William R. Molony Sr., Los Angeles.	MASSACHUSETTS Charles E. Mongan, Somerville. Walter A. Lane, Milton. Richard H. Miller, Boston. Edmond F. Cody, New Bedford. John M. Birnie, Springfield.
COLORADO Harold T. Low, Pueblo. John W. Ames, Denver.	MICHIGAN L. J. Hirschman, Detroit. H. A. Luce, Detroit. T. R. K. Gruber, Eloise. J. D. Brook, Grandville. C. R. Keyport, Grayling.
CONNECTICUT George Blumer, New Haven. Walter R. Steiner, Hartford.	MINNESOTA J. T. Christison, St. Paul. W. A. Coventry, Duluth. W. F. Braasch, Rochester.
DELAWARE Stanley Worden, Dover.	MISSISSIPPI
DISTRICT OF COLUMBIA Henry C. Macatee, Washington.	MISSOURI W. H. Breuer, St. James. W. M. West, Monett. A. R. McComas, Sturgeon.
FLORIDA Herbert L. Bryans, Pensacola. Meredith Mallory, Orlando.	MONTANA J. H. Irwin, Great Falls.
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Fred W. Rankin, Lexington, Ky.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

George Gray Ward, New York.

OPHTHALMOLOGY

Arthur J. Bedell, Albany, N. Y.

LARYNGOLOGY, OTOTOLOGY

Burt R. Shurly, Detroit.

PEDIATRICS

William Weston, Columbia, S. C.

PHARMACOLOGY AND THERAPEUTICS

Cary Eggleston, New York.

PATHOLOGY AND PHYSIOLOGY

J. J. Moore, Chicago.

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T. B. Throckmorton, Des Moines, Iowa.

DERMATOLOGY AND SYPHILOLOGY

Clyde L. Cummer, Cleveland.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Stanley H. Osborn, Hartford, Conn.

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Roland Hammond, Providence, R. I.

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Joseph F. Siler, Washington, D. C.

UNITED STATES NAVY

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UNITED STATES PUBLIC HEALTH SERVICE

Warren F. Draper, Washington, D. C.

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LIBRARY—Marjorie Hutchins Moore, Librarian, Chicago.

* Deceased.

ATLANTIC CITY, 1937—THE WORLD'S PLAYGROUND

Endowed with extraordinary natural advantages, Atlantic City has developed from a small fishing village into one of the greatest pleasure and health resorts of all times, playing host each year to some twenty million visitors. Characterized as the "World's Playground," practically every type of activity desired can be obtained. Although nature has been bountiful, man has added to Atlantic City a long list of advantages and diversions.

SAILING AND FISHING

Speed boats, motor launches and other craft float on the waters of the Inlet waiting to take passengers for a cruise over the ocean or along the calmer waters of the thoroughfare that separates the resort from the mainland. Giant seaplanes also are available to carry passengers for a short scenic trip or on a hurried flight to some distant city. The Municipal Airport each season finds that an increasing number of guests has arrived by air.

Deep sea fishing off Atlantic City's coast has become increasingly popular and has made the city a mecca for sportsmen from all corners of the globe. The deep sea net haul takes

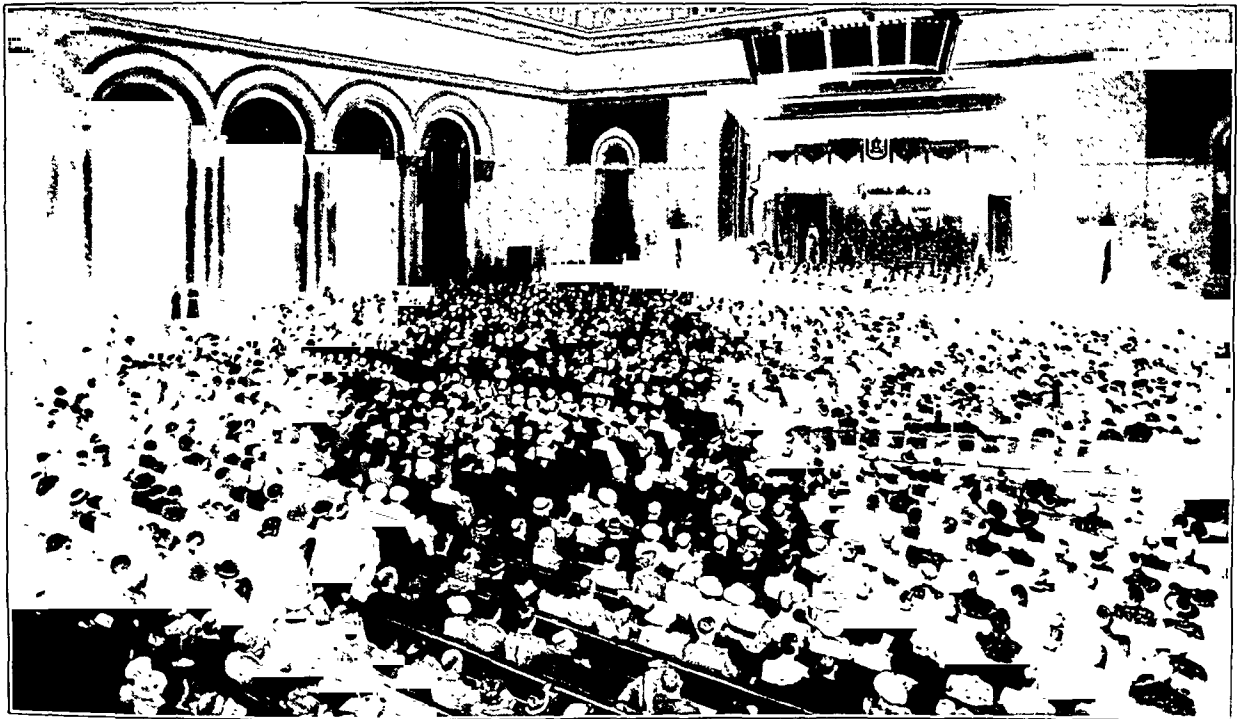
amusement devices for children are presented at the Steeplechase Pier, which features one of Atlantic City's two over-the-ocean restaurants; the other is on the Garden Pier, which also houses many amusements as well as a fine theater where legitimate shows and musical comedies frequently stage their openings before doing so on Broadway in New York. There are rare paintings, statuary and unusual discoveries of scientific excavation on exhibit at the historic Heinz Pier. The Central Pier is the home the year round of large national exhibits and of the Convention Bureau of Atlantic City.

THE BOARDWALK

Along the famous Boardwalk are five motion picture palaces which provide the visitor with early showings of current films; a legitimate theater offers special productions, while nationally known orchestras are featured in the restaurants, hotel grills, supper clubs and cafés.

HOTELS

The Boardwalk hotels are among some of the finest hotels in the world. They are skyscrapers along the beach, ready



OPENING GENERAL MEETING, ATLANTIC CITY AUDITORIUM IN 1935

place at noon and at 4 o'clock in the afternoon each day at the extreme end of Young's Million Dollar Pier, which jets out more than 2,000 feet over the ocean. All sorts of specimens of deep sea life are found in the catch, many exhibited later in the aquariums of Philadelphia, New York and Chicago. The pier's own aquariums are always filled with fish of every description. There are plenty of tuna and bluefish for those who wish to go farther to sea, and croakers, kings and weakfish for those who prefer to stay closer to shore. The Atlantic City Tuna Club has a new home on the back bay near Gardner's Basin, where it is ready to cater to all the demands of visiting fishermen.

AMUSEMENT PIERS

The great amusement piers in Atlantic City are among the most famous in the world. At the Steel Pier, a variety of attractions too numerous to visit in one day can be witnessed for a nominal admission. There are on the program famous stage, screen and radio stars, three motion picture houses, vaudeville, diving horses, acrobats, minstrels, dancing, water sports and other interesting attractions. Many of the latest

to cater to every wish of their guests, and at rates which are said to be lower than in years. The array of smart shops that string along the Boardwalk for miles display merchandise from all corners of the globe, and they as well as the hotels have collaborated in a reduction of prices to answer the challenge of other resorts.

THE CONVENTION HALL

The Convention Hall, in which the American Medical Association will hold its meetings, is the largest building of its kind in the world, covering an area of seven acres, fronting on the Boardwalk, between Georgia and Mississippi avenues. This huge building, erected at a cost of fifteen million dollars, has seating accommodations for nearly 75,000 persons, or more than sufficient to seat the entire permanent population of Atlantic City. Yet the Convention Hall is none too large, for at times during the summer there are as many as 400,000 visitors present in the city. The main auditorium alone has a seating capacity of 41,000 and a floor space of 168,000 square feet, with an additional space of 100,000 square feet provided on the ground floor. The Convention Hall is so large that

the well known Madison Square Garden of New York City could be placed in one corner of the main hall and a track meet and several large gatherings be staged at the same time in the remaining area. At the end of the auditorium is a large well equipped stage, capable of seating 5,000 persons. The immensity of the main auditorium may be visioned from the fact that a thirteen story building 500 feet long and 200 feet wide could be erected within its walls, leaving a space of 100 feet on all four sides.



ATLANTIC CITY SKY LINE

THE PIPE ORGAN

The largest pipe organ in the world is housed in the main auditorium of the Convention Hall. There are two giant consoles, one with seven manuals and the other, which is movable, with five, and 33,000 pipes ranging from three sixteenths of an inch to 64 feet in length. The organ has 1,255 stops and is run by a 365 horsepower group of motors. It has seven blowers and its own generator, and the wiring used in the organ would girdle the earth twice. Four years' time and \$500,000 were required to complete this great organ.

A striking feature of the hall is its versatility; the sheet of ice, 100 by 200 feet, frozen on the floor for skating, can be disposed of in a short time and a full sized indoor football field laid in its place. The lighting of the Convention Hall is a triumph of color and illumination, with the hues of the sea and the sky mingled with gold predominating. On the ground level are two well equipped bath houses 60 by 150 feet in area. The lobby leading to the Convention Hall has a vaulted passage 125 feet in length and 50 feet wide, with a ceiling of Gustavino tile and a two-tone terrazo floor. Leading from the lobby, and connecting with ramps to the upper and lower levels of the auditorium, are spacious corridors.

Stretching along the entire Boardwalk in front of the great Convention Hall is an arcade containing fourteen beautiful stores faced with marble and ornamental bronze; on the Pacific Avenue side of the building there are twenty-one additional stores. From the Arcade there leads off a wide entrance to the interior of the Convention Hall; about 400 automobiles may be parked on the ground floor of the Convention Hall. Wide terrace sidewalks have been provided on two sides of the building in addition to the ramps.

Ventilation and heating in a structure of this character are very important items. Ventilation is provided by thirty-one motor driven fans with a capacity of 1,600 tons of air per hour; there are also seventy-five vent fans capable of discharging 2,900 tons of air per hour. Seventy-two per cent of the air supplied to the Convention Hall is for the main auditorium. Direct radiation is the system used for heating the main entrance lobby and entrances on the side of the building. For the maintenance of the required vacuum in the heating returns and for the disposal of air and condensation, there are six vacuum pumps. The temperature throughout the building is automatically controlled. Three Sterling water boilers of 1,490 horsepower have been installed to provide

steam for heating, for hot water and for exhibition purposes. The oil fuel for this huge plant is stored underground in tanks; however, coal bunkers have been provided to make if necessary a quick change from oil to coal as fuel. Elevators capable of handling all kinds of heavy equipment have been installed. There are two large freight lifts each having a capacity of 50,000 pounds, in addition to an elevator of 4,000 pounds capacity for trunks and light freight, and a passenger elevator with a lifting rate of 300 feet a minute.

GOLF IN ATLANTIC CITY

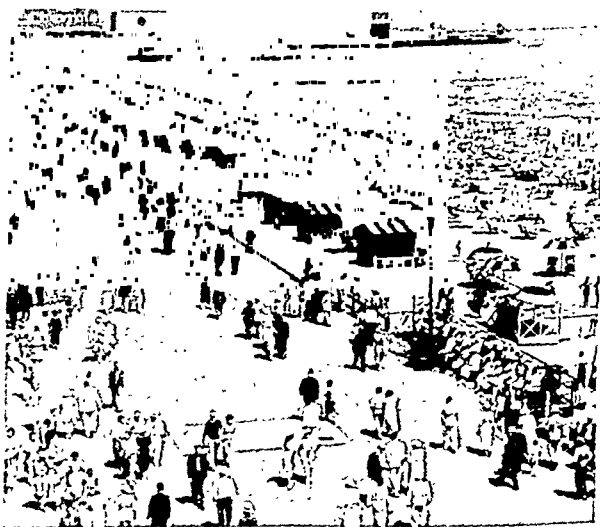
Five splendid golf courses, the Northfield and Linwood Country Clubs and the Brigantine, Ocean City and Seaview Golf Clubs, are only a few minutes ride from the heart of Atlantic City. For those who enjoy tennis, there are well equipped municipally owned courts at the Inlet and at the airport. Horseback riding may be enjoyed throughout the year; saddle horses and ponies for the children may be obtained at several stands along the beach. The wide eight mile stretch of beach makes a very beautiful bridle path.

ABSECON LIGHTHOUSE

Of great interest is the famous Absecon Lighthouse, which for years has served as a beacon to warn mariners of the treacherous Brigantine shoals. During certain hours visitors are allowed to walk up to the top of the Lighthouse, and the view out over the ocean is well worth the climb.

RESIDENTIAL SUBURBS

Atlantic City has two beautiful residential suburbs, Margate and Ventnor, where Spanish villas and colonial mansions, set in the center of great lawns, and typical American homes await amidst shrubbery and flowers the attention of visitors. It is to Margate and Ventnor and the Chelsea section of

THE BOARDWALK, CABANAS AND ONE OF THE PIERS
AT ATLANTIC CITY

Atlantic City that cottagers move for the summer months, and here will be found in these cottages persons who are famous in the annals of the theater, politics, art and society.

TRANSPORTATION FACILITIES

Atlantic City has unequalled transportation facilities, making it possible for millions of persons to pour in and out of the resort by motor, train, bus and airplane. No other resort in the world has such highways leading into it, and to no other resort is it easier for wheels to turn. The world's best known

highway, the "White Horse Pike," now has a twin, the "Black Horse Pike," to assist in aiding the millions to move in and out of Atlantic City. The Delaware River is crossed by five highway bridges from Philadelphia, north, and spanned by five important ferry routes from Philadelphia, south, draining the important areas to the South and West. In 1919 Atlantic City recognized the importance of commercial aviation and dedicated to it the first municipal airport in the world. By plane Atlantic City is five hours from Chicago, eight from Kansas City, one to Newark, two to Washington, and less than three to Pittsburgh. The resort's airport is one of the finest in the country.

GARAGES

There is a garage in the Convention Hall directly under the arena and the assembly hall, which will be a great con-

venience to those who are driving to the annual meeting of the American Medical Association. This garage will accommodate about 500 cars, and a special rate will be made for the period of the convention.

JITNEY SERVICE

There is a jitney service along Pacific Avenue from Maine Avenue to Jackson Avenue, the border of Ventnor.

ROLLING CHAIRS

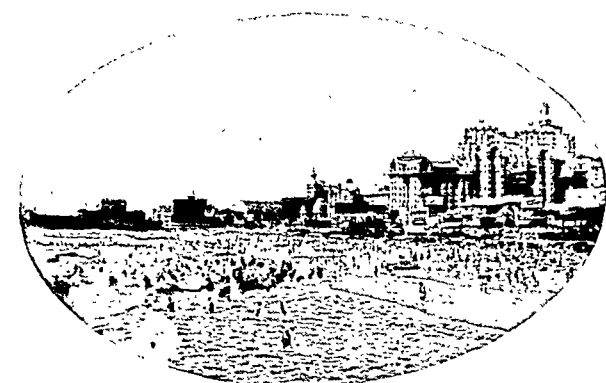
Special rates will be granted on rolling chairs to persons wearing convention badges. There will be a nominal charge for one, two or three passengers between Seaside Hotel and Convention Hall, or between Hotel Chelsea and the Convention Hall.

TRANSPORTATION

Railroad Rates to Atlantic City

Because of the reduction in one way fares to two cents a mile for tickets good in coaches and to three cents a mile in sleeping or parlor cars and the cancellation of the surcharge applicable on tickets good in sleeping or parlor cars, the Central Passenger, the New England Passenger and the Trunk Line associations have discontinued granting special fares for conventions. The Southeastern, the Southwestern, the Transcontinental and the Western passenger associations do not grant so-called convention fares, but in their respective territories, as well as in the territories of the Eastern and Western Canadian passenger associations, there are effective daily round trip fares. No credentials will be necessary when purchasing tickets.

Members of the American Medical Association in the territories of the Central Passenger, the New England Passenger and the Trunk Line associations who expect to attend the annual session in Atlantic City may purchase one way tickets, but it would be more advantageous for them to avail themselves of summer or all-year excursion fares, as the excursion fares are less than the combination of the one way fares going and returning. The summer and all-year excursion tickets are good going and returning by the same route only and are not good going by one route and returning by another. Summer excursion tickets to Atlantic City require validation by signature at the ticket office in Atlantic City, which may be cared for at the time the ticket agent in Atlantic City is consulted regarding sleeping or parlor car accommodations for the return trip, but all-year excursion tickets do not require validation.



SURF BATHERS AT ATLANTIC CITY

Members in the territories of the Southeastern, Southwestern, Transcontinental and Western passenger associations, when purchasing their tickets to Atlantic City, are requested to consult their local ticket agents concerning daily round trip fares, which are based on a convention fare to and from the boundaries of those parts of the territories of the eastern passenger associations through which the members will have to travel to reach Atlantic City plus the fares in effect in territories of the eastern passenger associations. Such round trip

tickets may be purchased in the territory of the Southeastern Passenger Association with return limits of fifteen days and six months; in the territory of the Southwestern Passenger Association with return limits of fifteen days, thirty days and six months, and in the territories of the Transcontinental and Western passenger associations with return limit of thirty days.



SURF RIDERS—CONVENTION HALL AND HOTELS IN THE BACKGROUND

If a return limit longer than thirty days and up to six months is desired in the territories of the Transcontinental and Western passenger associations, through tickets are on sale daily on the basis of fare and two thirds of the one way first class fare for the round trip.

Summer excursion fares will also be in effect from the territories of the Transcontinental and Western passenger associations to Atlantic City, information concerning which should be secured from the local ticket agent.

No credentials will be necessary when purchasing tickets. If, however, summer excursion tickets to Atlantic City are purchased, they must be validated at the ticket office in Atlantic City.

Air Travel

Airline service from all parts of the United States to Atlantic City is available to those who desire to utilize this speedy form of transportation to the annual session.

There is practically no city in the United States more distant from Atlantic City than twenty hours by plane or a combination of air-rail service, and there is overnight service from points as distant as 2,000 miles.

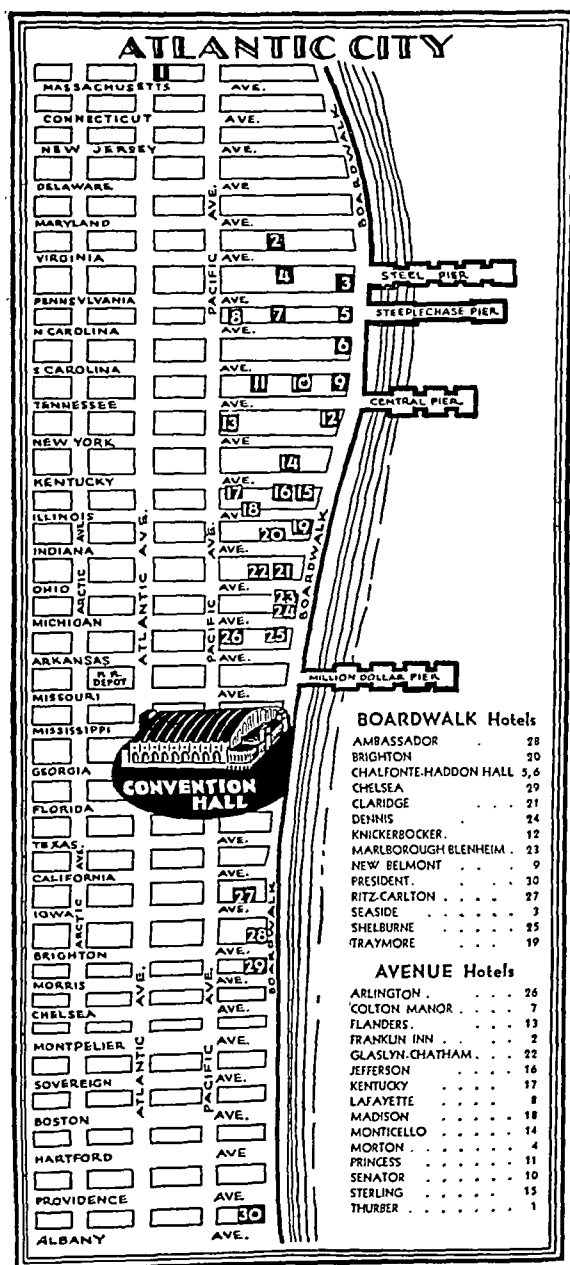
United Air Lines and Transcontinental and Western Air, Inc., have announced new lower fares. Special circle tour arrangements will permit air travelers to visit both Philadelphia and New York without payment of extra fare, and there will be "doctors' specials" from several important cities.

For particulars, ask your local representative of United Air Lines or Transcontinental and Western Air, Inc. Representatives of air lines will be in Atlantic City for the handling of return reservations and general air travel information.

REGISTRATION

The Bureau of Registration will be located in the Convention Hall, Boardwalk between Mississippi and Georgia avenues. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

MAP OF ATLANTIC CITY AND
KEY TO MAP



Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows, and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL, and paid their Fellowship dues for the current year. The annual Fellowship dues provide a subscription to THE JOURNAL for one year. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards

should be presented at the registration window. Any who have not received cards for 1937 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in component county medical societies are members of constituent state associations and of the American Medical Association. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Atlantic City so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1937 should write to the American Medical Association for application blanks and information as to further requirements.

Register Early

Fellows living in Atlantic City, as well as all other Fellows who are in Atlantic City on Monday and Tuesday, should register as early as possible. The names of those who register will appear in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends if they have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card, and sign the application on the back. These cards will be found on the tables.

Entries on the registration cards should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, published on Tuesday, Wednesday, Thursday and Friday of the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with their pocket cards, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than May 20. Any applications that are received later than May 20 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the Atlantic City session.

It will be possible for members of the organization to qualify as Fellows at Atlantic City. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Atlantic City bring with them their state membership cards for 1937. The state membership card should be presented along with the filled in *blue* registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Ambassador Hotel

General Officers of the American Medical Association and members of the House of Delegates may register for the

Scientific Assembly at a booth near the Renaissance Room of the Ambassador Hotel. This arrangement is made for the convenience of the members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Renaissance Room of the Ambassador Hotel. Delegates are requested to register for the Scientific Assembly before presenting cre-

dentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock, Monday morning, June 7, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

GENERAL SCIENTIFIC MEETINGS

MONDAY, JUNE 7—2 P. M.

Mandelic Acid in the Treatment of Urinary Infections.
HENRY F. HELMHOLZ, Rochester, Minn.
Unusual Aspects of Hyperthyroidism.
CHAUNCEY W. DOWDEN, Louisville, Ky.
Splanchnicectomy in the Treatment of Hypertension.
MAX M. PEET, Ann Arbor, Mich.
A Six Year Study of the Clinical Efficacy of Digitalis Preparations.
W. D. STROUD and JOSEPH B. VANDER VEER, Philadelphia
Gonococcic Arthritis: Its Pathogenesis and Clinical Course, Including Studies on the Mechanism of Recovery.
CHESTER S. KEEFER, Boston
Motion Picture: Forceps Operation.
JOSEPH B. DE LEE, Chicago

TUESDAY, JUNE 8—9:00 A. M.

MEDICAL SECTION

The Diagnosis and Treatment of Cirrhosis of the Liver in the Early Stages.
THOMAS P. SPRUNT, Baltimore
Present Concepts of Coronary Occlusion.
CHARLES C. WOLFERTH, Philadelphia

Cerebral Vascular Episodes.

TINSLEY R. HARRISON, Nashville, Tenn.
Protamine Insulin.
ELLIOTT P. JOSLIN, Boston
Complications of Peptic Ulcer and Their Treatment.
FRED H. KRUSE, San Francisco
Disturbance of the Cardiovascular System in Nutritional Deficiency.
SOMA WEISS and ROBERT W. WILKINS, Boston
SURGICAL SECTION
Injuries of the Knee Joints.
FRANK D. DICKSON, Kansas City, Mo.
Modern Trends in the Treatment of Cancer of the Rectum and Rectosigmoid.
FRED W. RANKIN, Lexington, Ky.
Automobile Injuries.
CLAIRE LEROY STRAITH, Detroit
Anesthesia.
FRANK H. LAHEY, Boston

TUESDAY, JUNE 8—2 P. M.

Control of Syphilis.
THOMAS PARRAN, Washington, D. C.
Congenital and Prenatal Syphilis.
H. N. COLE, Cleveland
Cardiovascular Syphilis.
JAMES E. PAULLIN, Atlanta, Ga.
Nonspecific Treatment of Syphilis.
PAUL A. O'LEARY, Rochester, Minn.
Latent Syphilis.
A. BENSON CANNON, New York

TALKING MOTION PICTURE ON SYPHILIS

It is expected that a talking motion picture on syphilis now being produced under the joint auspices of the American Medical Association and the United States Public Health Service will be ready for showing at the Atlantic City session. If the picture is ready, as expected, it will be shown immediately

after the Symposium on Syphilis in the General Scientific Meetings Tuesday afternoon, June 8, and immediately after the completion of the program of the Section on Surgery, General and Abdominal, on the afternoons of Wednesday and Thursday, June 9 and 10.

ATLANTIC CITY HOTELS

A list of Atlantic City hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 7-11. Dr. William Edgar Darnall is chairman of the Subcommittee on Hotels of the Local Com-

mittee on Arrangements and may be addressed at 16 Central Pier, Atlantic City, N. J. The advertising announcement and coupon for reservations appear on advertising page 115 of this issue.

Boardwalk Hotels	European Plan		Additional Charge for Each Person for Three Meals
	Room For 1 Person	Room For 2 Persons	
AMBASSADOR Boardwalk at Brighton Ave.	\$3.00- \$ 6.00	\$6.00-\$10.00	\$4.00
BRIGHTON Boardwalk at Indiana Ave.	3.00- 5.00	5.00- 8.00	3.50
CHALFONTE-HADDON HALL Boardwalk at N. Carolina Ave.	3.00- 8.00	6.00- 10.00	3.50
CHELSEA Boardwalk at Morris Ave.	3.00- 5.00	5.00- 8.00	3.00
CLARIDGE Boardwalk at Park Place	4.00- 9.00	6.00- 11.00	4.00
DENNIS Boardwalk at Michigan Ave.	3.50- 6.00	6.00- 10.00	3.00
KNICKERBOCKER Boardwalk at Tennessee Ave.	3.00- 4.00	5.00- 7.00	3.00
MARLBOROUGH-BLENHEIM Boardwalk at Ohio Ave.	4.00- 6.00	6.00- 11.00	3.00
NEW BELMONT Boardwalk at Ocean Ave.	2.50- 3.00	4.00- 6.00	E. P. Only
PRESIDENT Boardwalk at Albany Ave.	3.50-	5.50- 6.00	E. P. Only
RITZ-CARLTON Boardwalk at Iowa Ave.	3.00- 6.00	6.00- 10.00	3.00
SEASIDE Boardwalk at Pennsylvania Ave.	3.00- 4.00	5.00- 6.00	3.00
SHELburne Boardwalk at Michigan Ave.	4.00- 6.00	6.00- 8.00	E. P. Only
TRAYMORE Boardwalk at Illinois Ave.	3.50- 10.00	6.00- 12.00	3.00

Avenue Hotels	European Plan		Additional Charge for Each Person for Three Meals
	Room For 1 Person	Room For 2 Persons	
ARLINGTON 116 S. Michigan Ave.	3.50- 4.00	5.00- 6.00	2.00
COLTON MANOR 110 S. Pennsylvania Ave.	3.00- 4.00	5.00- 7.00	2.00
FLANDERS 127 St. James Place	3.00- 4.00	5.00	2.00
FRANKLIN INN 157 S. Virginia Ave.	2.50	4.00	2.00
GLASLYN-CHATHAM Park Place		5.00	2.00
JEFFERSON 136 S. Kentucky Ave.	3.00- 3.50	5.00- 6.00	2.50
KENTUCKY 126 S. Kentucky Ave.	2.50	4.00	E. P. Only
LAFAYETTE 109 S. No. Carolina Ave.	3.00- 4.00	5.00- 7.00	2.00
MADISON 123 S. Illinois Ave.	3.00- 4.00	5.00- 7.00	2.50
MONTICELLO 131 S. Kentucky Ave.		5.00	2.00
MORTON 150 S. Virginia Ave.	2.50- 3.50	4.00- 6.00	2.50
PRINCESS 144 S. So. Carolina Ave.	2.50	4.00	2.00
SENATOR 166 S. So. Carolina Ave.	3.00- 4.00	5.00- 7.00	2.50
STERLING 143 S. Kentucky Ave.	2.50- 3.00	4.00- 5.00	2.00
THURBER Atlantic and Massachusetts Aves.	2.50	4.00	E. P. Only

THE ATLANTIC CITY SESSION

MEETING PLACES

HOUSE OF DELEGATES: Renaissance Room of the Ambassador Hotel, Boardwalk at Brighton Avenue.

OPENING GENERAL MEETING: Ballroom, Second Floor, Convention Hall.

GENERAL SCIENTIFIC MEETINGS: Ballroom, Second Floor, and Room E, First Floor, Convention Hall.

SECTIONS OF SCIENTIFIC ASSEMBLY
PRACTICE OF MEDICINE: Room E, First Floor, Convention Hall.

SURGERY, GENERAL AND ABDOMINAL: Ballroom, Second Floor, Convention Hall.

OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY: Ballroom, Second Floor, Convention Hall.

OPHTHALMOLOGY: Room B, First Floor, Convention Hall.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY: Room B, First Floor, Convention Hall.

PEDIATRICS: Room E, First Floor, Convention Hall.

PHARMACOLOGY AND THERAPEUTICS: Committee Room 13, Third Floor, Convention Hall.

PATHOLOGY AND PHYSIOLOGY: Committee Room 1, Floor, Convention Hall.

NERVOUS AND MENTAL DISEASES: Committee Room 2, Third Floor, Convention Hall.

DERMATOLOGY AND SYPHILOLOGY: Room A, First Floor, Convention Hall.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: Room C, First Floor, Convention Hall.

UROLOGY: Room A, First Floor, Convention Hall.

ORTHOPEDIC SURGERY: Committee Room 12, Third Floor, Convention Hall.

GASTRO-ENTEROLOGY AND PROCTOLOGY: Room C, First Floor, Convention Hall.

RADIOLOGY: Room D, First Floor, Convention Hall.

GENERAL HEADQUARTERS, SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, TECHNICAL EXHIBITS, INFORMATION BUREAU AND BRANCH POSTOFFICE: Convention Hall.

The Convention Hall is located on the Boardwalk between Mississippi and Georgia avenues.

LOCAL COMMITTEE ON ARRANGEMENTS

WILLIAM J. CARRINGTON, Chairman

HAROLD STERN DAVIDSON, Secretary

JOSEPH C. MARSHALL, Treasurer

Subcommittee on Sections and Section Work: Clarence L. Andrews, Chairman.

Practice of Medicine: David Ward Scanlan, Hilton S. Read, John S. Irvin.

Surgery, General and Abdominal: James H. Mason III, Uzzell, George A. Poland.

Obstetrics, Gynecology and Abdominal Surgery: Edward F. Ophthalmology: Halvor L. Harley, Albert Pilkington.

Laryngology, Otology and Rhinology: C. Coulter Charlton, S. Eugene Dalton.

Pediatrics: Walter B. Stewart, E. Harrison Nickman.

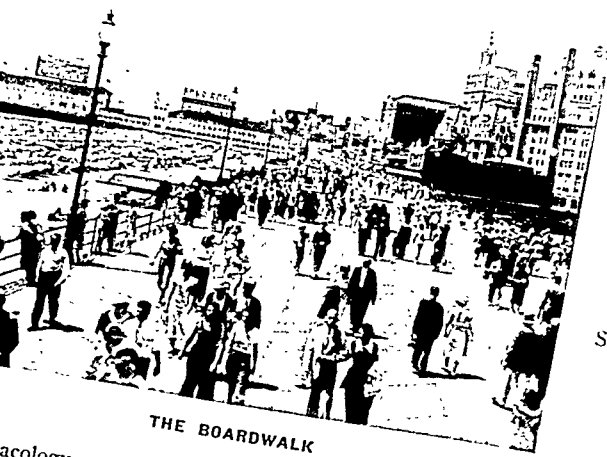
Preventive and Industrial Medicine and Public Health: Samuel L. Salasin, Robert M. Grier.

Urology: Charles H. deT. Shivers, Stanley M. McGeehan.

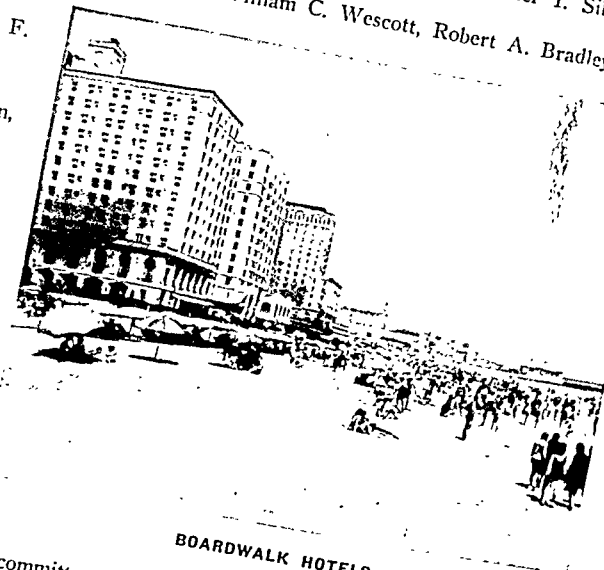
Orthopedic Surgery: Harry Subin, Edward Z. Holt.

Gastro-Enterology and Proctology: Homer I. Silvers, M. Browne Holoman.

Radiology: William C. Wescott, Robert A. Bradley.



THE BOARDWALK



BOARDWALK HOTELS

acology and Therapeutics: Lawrence A. Wilson, L. Walker.

ogy and Physiology: Charles Hyman, Isaac Shenfeld.

and Mental Diseases: William Cole Davis, William

ogy and Syphilology: William O. Roop, Abraham

er.

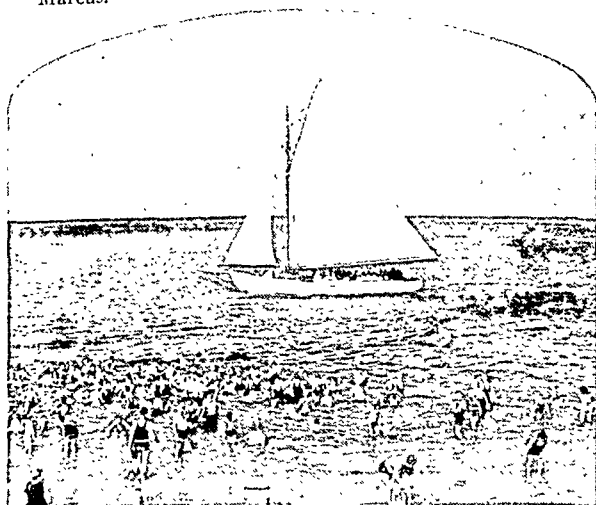
Subcommittee on Registration: Clyde M. Fish, Chairman; Theophilus H. Boysen, W. Paxson Chalfonte, Elisha C. Chew, Joseph P. Cleary, Samuel M. Diskan, William A. Donnelly, Edward H. Dyer, Arthur E. Ewens, William W. Fox, Clarence Garrabrant, Benjamin L. Gordon, Carl Gordon, Gerald L. Infield, Milton S. Ireland, John Joseph Jacobson, Stanley L. Lucas, Leo Kahn, Leland S. Madden, Peter H. Marvel, Daniel C. Reyner, Allan Rieck, Charles Schwinn, A. Burton Shimer, Ernest L. Shore, Charles D. Sinkinson, Carl Surran, Samuel L. Winn.

Subcommittee on Technical Exhibits: Isaac E. Leonard, Chairman; S. Worth Clark, Louis Mackler.

Subcommittee on Scientific Exhibit: Robert A. Kilduffe, Chairman; William W. Hersohn, Clarence B. Whims.

Subcommittee on Hotels: William E. Darnall, Chairman; Maurice H. Axilrod, Kenneth P. Henderson.

Subcommittee on Printing and Badges: Louis Feinstein, Chairman; Albert E. Forsythe, Harry S. Hoffman, Joseph H. Marcus.



SET SAIL FOR ATLANTIC CITY

Subcommittee on Information: Edward Guion, Chairman; Roland T. de Hellebranth, Henry C. James, James C. Mevay, D. J. M. Miller, Louis Rosenberg, Sidney Rosen-

blatt, George C. Schwarzkopf, Samuel Stern, Samuel Stalberg, Alexander Stevenson, Samuel E. Weiner, Raymond A. Williams.

Subcommittee on Publicity: Samuel Barbash, Chairman; Filbert R. Corson, Bernard Crane, Herman Kline, W. L. Eckert.

Subcommittee on Finance: Joseph C. Marshall, Chairman; Myrtille G. Frank, Sidney Rosenblatt.

Subcommittee on Women Physicians: Clara K. Bartlett, Chairman; Winifred A. Blampin.

Subcommittee on Entertainment:

Dinner to Delegates: David B. Allman, Chairman; Robert B. Durham, Jean A. Gruhler, Philip Marvel Sr., Anthony G. Merendino, George R. Stamps.

Alumni Dinners, Smokers and Fraternity Banquets: V. Earl Johnson, Chairman; Marcus Magill, Morton M. Major.

Opening General Meeting: Sloan G. Stewart, Chairman; Norman H. Bassett, Woodburn J. Hudson, Norman J. Quinn, Baxter H. Timberlake, Frazier J. Elliott.

President's Reception and Ball: Charles B. Kaighn, Chairman; J. Carlisle Brown, L. Elmore Hess, Royal E. Durham, Andrew M. Smith.

Golf: Walt P. Conaway, Chairman; Ily R. Beir, John Pennington, Alfred W. Westney, R. Rostin White.

Beach Activities: Charles L. Bossert, Chairman; Richard C. Bew, Samuel Halpern.

Women's Entertainment: Mrs. Carl A. Surran, Chairman.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A Symposium on Health Problems in Education, under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the A. M. A. Section on Pediatrics and Section on Preventive and Industrial Medicine and Public Health, will be held in the Music Room of the Hotel Chalfonte, Atlantic City, June 8, at 2 p. m. Dr. Thomas D. Wood, chairman of the Joint Committee, will preside. The following program will be presented:

Nutritional Problems in Education, by Dr. James S. McLester, past president of the American Medical Association; director of school health, Birmingham, Ala.

Hearing Problems in Education, by Dr. Horace Newhart, professor of otolaryngology, University of Minnesota Medical School, Minneapolis.

Vision Problems in Education, by Dr. Edward Jackson, emeritus professor of ophthalmology, University of Colo-

rado School of Medicine; member, Joint Committee on Health Problem in Education, Denver.

Discussion to be opened by Dr. Charles C. Wilson, vice chairman, Joint Committee; director, Physical and Health Education, Board of Education, Hartford, Conn.

Control of Communicable Diseases in Schools, by Dr. John A. Ferrell, Rockefeller Foundation, New York.

Discussion to be opened by Dr. Henry F. Vaughan, commissioner of health, Detroit.

Health Education and Health Services in Schools from the Point of View of the Educator, Dr. James F. Rogers, U. S. Office of Education, Washington, D. C.

Discussion to be opened by Dr. Dean F. Smiley, Medical Adviser and Professor of Hygiene, Cornell University, Ithaca, N. Y.

ENTERTAINMENT

Dinner for Delegates and Officers

A dinner and entertainment is being arranged for Monday, June 7, beginning at 7 p. m., in the Renaissance Room of the Ambassador Hotel for delegates and officers of the American Medical Association.

Luncheon for Delegates

A luncheon for the officers and the members of the House of Delegates of the American Medical Association is being planned for Tuesday noon, June 8, between the morning and afternoon sessions of the House of Delegates at the Ambassador Hotel.

Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, June 8, at 8 o'clock, in the Ballroom of Convention Hall.

President's Reception

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening, June 10, at 9 o'clock.

Alumni and Group Dinners

Notice has been received of the following alumni and group dinners to be held during the week of the session:

ALPHA OMEGA ALPHA, Thursday, June 10, promptly at 6:30 p. m., in the Surf Room, Ambassador Hotel. Dr. Walter B. Cannon will speak on the "Value and Harm of Scientific Controversy."

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, Wednesday, June 9, 7 o'clock, Hotel Claridge.

AMERICAN LARYNGOLOGICAL SOCIETY, Friday, June 4, in the Submarine Grill, Hotel Traymore.

AMERICAN PROCTOLOGIC SOCIETY, Tuesday, June 8, at the Hotel Marlborough-Blenheim.

AMERICAN SOCIETY FOR THE HARD OF HEARING, Sunday, June 6, in the Club Room, Hotel Traymore.

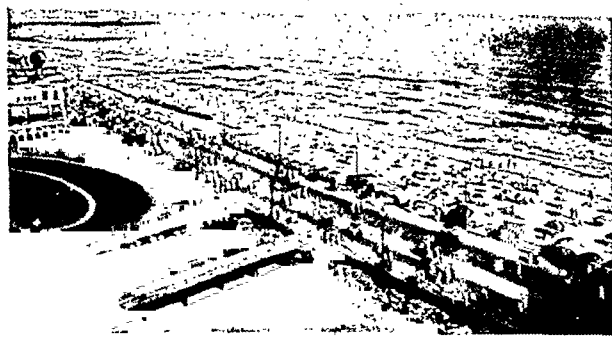
COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS MEDICAL ALUMNI, Wednesday, June 9, 7 p. m., at the Hotel Traymore.

JEFFERSON MEDICAL COLLEGE ALUMNI ASSOCIATION, Wednesday, June 9, 9 p. m., at the Hotel Ambassador.

MEDICAL CHIRURGICAL COLLEGE OF PHILADELPHIA ALUMNI, Wednesday, June 9, 7:30 p. m., at the Hotel Seaside.

RUSH MEDICAL COLLEGE, Wednesday, June 9, 7 p. m., in the Surf Room of the Hotel Ambassador.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, Wednesday, June 9, 7 p. m., at the Hotel Traymore.



THE ATLANTIC CITY BEACH AT PARK PLACE
AND THE BOARDWALK

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY, Wednesday, June 9, 7 p. m., at the Hotel Marlborough-Blenheim.

SOCIETY FOR THE STUDY OF ALLERGY, Monday, June 7, in the Belvedere Room, Hotel Traymore.

THE WILLS HOSPITAL SOCIETY, Wednesday, June 9, 6:30 p. m., Seaview Golf Club.

UNIVERSITY OF MICHIGAN ALUMNI, Wednesday, June 9, 7 p. m., at the Hotel Traymore.

UNIVERSITY OF PENNSYLVANIA MEDICAL ALUMNI, Wednesday, June 9, 7 p. m., at the Hotel Madison.

WOMEN PHYSICIANS, Wednesday, June 9, at the Chalfonte Hotel.

Fraternity and Club Luncheons

Notice has been received of the following fraternity and club luncheons:

ALPHA KAPPA KAPPA FRATERNITY, Wednesday, June 9, 12:30 p. m., at the Hotel Ambassador.

ALPHA MU PI OMEGA FRATERNITY, Wednesday, June 9, 12:30 p. m., at the Hotel Madison.

AMERICAN COMMITTEE ON MATERNAL WELFARE, INC., Wednesday, June 9, 12:15 p. m., at the Hotel Dennis. Short addresses by Drs. Malcolm T. MacEachern, H. G. Weiskotten and Ray Lyman Wilbur. It is requested that tickets be purchased directly from the hotel, and well in advance, so that the service may be expedited.

ATLANTIC CITY HOSPITAL INTERNS, Wednesday, June 9, 12:30 p. m., at the Hotel Ambassador.

MEDICAL VETERANS OF THE WORLD WAR, SECTION OF THE ASSOCIATION OF MILITARY SURGEONS, Tuesday, June 8, 1 p. m., Hotel Ambassador.

NATIONAL BOARD OF MEDICAL EXAMINERS, Monday, June 7, Hotel Marlborough-Blenheim.

NEW YORK POSTGRADUATE RESIDENT ALUMNI, Thursday, June 10, 12:30 p. m., at the Hotel Ambassador.

PHI DELTA EPSILON FRATERNITY, Thursday, June 10, 1 p. m., at the Hotel Ambassador.

PHI RHO SIGMA FRATERNITY, Wednesday, June 9, 12:30 p. m., at the Hotel Ambassador.

SOCIETY FOR THE STUDY OF ALLERGY, Tuesday, June 8, in the Belvedere Room of the Hotel Traymore.

THETA KAPPA PSI FRATERNITY, Wednesday, June 9, 12:30 p. m., at the Hotel Madison.

THE ASSOCIATED DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS, Thursday, June 10, 12:30 p. m., at the Hotel Marlborough-Blenheim.

WOMAN'S AUXILIARY

The headquarters of the Woman's Auxiliary will be located in the Hotel Traymore. Auxiliary visitors are requested to register immediately on arrival in Atlantic City so as to make necessary reservations and purchase tickets for social functions.

SUNDAY, JUNE 6

2:30 p. m. Convention Committee meeting.

4 p. m. Tea. Music.

7 p. m. Dinner to the National Board.

MONDAY, JUNE 7

9:30 a. m. Board of Directors' meeting.

1 p. m. Informal luncheon at the Submarine Grille of the Traymore Hotel.

2 p. m. Board of Directors' meeting.

7 p. m. "Get acquainted" beach party and Steel Pier evening (boat rides, dancing, games, motion pictures).

TUESDAY, JUNE 8

9 a. m. General session.

1 p. m. Luncheon (place to be decided later).

3:30 p. m. Rolling chair ride.

Evening open.

WEDNESDAY, JUNE 9

9 a. m. General session.

1 p. m. Reception and auxiliary luncheon.

7 p. m. Dinner (place to be decided later). Music and entertainment.

THURSDAY, JUNE 10

9:30 a. m. Executive Committee meeting.

10:30 a. m. Board meeting.

1 p. m. Luncheon on the beach. Beach fashion review. Ocean bathing.

7 p. m. "Bring Your Husband" dinner.

FRIDAY, JUNE 11

Not planned as yet: possibly a sail boat party.

NOTE.—There will be a Southern Auxiliary breakfast at 8 a. m. one morning during the week, but the day has not yet been selected.

WOMEN PHYSICIANS

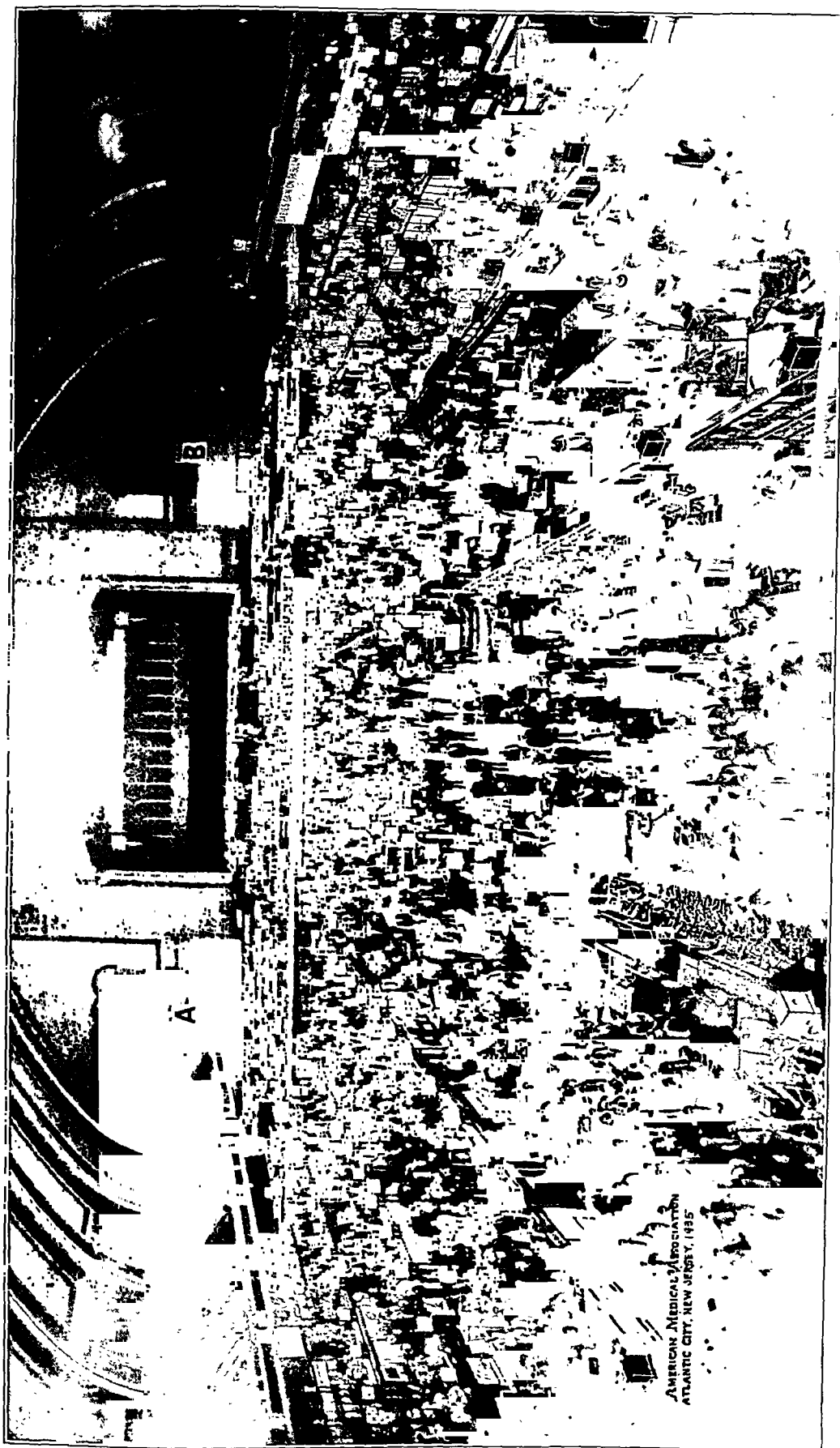
The headquarters of women physicians will be at the Chalfonte Hotel.

The following program has been arranged:

Sunday, June 6, 6:20 p. m., informal dinner, with Dr. Helen F. Upham of New Jersey presiding

Monday, June 7, 12:30 p. m., luncheon. At 7 p. m., informal dinner, with Dr. Catharine Macfarlane of Pennsylvania presiding.

Tuesday, June 8, 1 p. m., luncheon. At 6:30 p. m., informal dinner, with Dr. Mabel M. Akin presiding



ATLANTIC CITY EXPOSITION, 1935

GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-third annual tournament at the beautiful Seaview Country Club on Monday, June 7.

SEVENTY TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes gross, the Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, the Detroit Trophy; the Championship Flight, First Gross, thirty-six holes, the St. Louis Trophy; the Championship Flight, First Net, thirty-six holes, the President's Trophy; the Eighteen Hole Championship, the Golden State Trophy; the Eighteen Hole Handicap Championship, the Ben Thomas Trophy; the Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy; the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy, and the Kickers Handicap, the Wisconsin Trophy. Other events and prizes will be announced at the first tee.

FELLOWS IN EVERY STATE OF THE UNION

W. Albert Cook of Tulsa, Okla., is president and E. S. Edgerton of Wichita, Kan., and Clarence Capell of Kansas City, Mo., are vice presidents of the American Medical Golfing Association, which was organized in 1915 by Will Walter, Wendell Phillips and Gene Lewis, and now totals 1,300 members representing every state in the Union. The living past presidents include Thomas Hubbard of Toledo, Fred Bailey of St. Louis, Edward Martin of Media, Pa., Robert Moss of La Grange,

K. Nicoll of Chicago, Charles Lukens of Toledo, Ohio, and M. M. Cullom of Nashville, Tenn.

WALT P. CONAWAY AGAIN HEADS ATLANTIC CITY
GOLF COMMITTEE

The Atlantic City Committee is under the general chairmanship of Walt P. Conaway, 1723 Pacific Avenue, who so ably managed the 1925 tournament at Seaview, and the 1935 com-



SEAVIEW COUNTRY CLUB. HERE THE A. M. G. A. WILL
HOLD ITS 1937 TOURNAMENT



ATLANTIC CITY COUNTRY CLUB, NORTHFIELD

Texas, Charlton Wallace of New York, Will Walter of Evanston, Ill., and Charlottesville, Va., James Eaves of Oakland, Calif., Chester Brown of Danbury, Conn., Samuel Childs of Denver, W. D. Sheldon of Rochester, Minn., Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frank A. Kelly of Detroit, John Welsh Croskey of Philadelphia, Homer

petition at the Northfield Club. He will be assisted by I. R. Beir, John Pennington, Karl Scott, Alfred Westney and R. R. White.

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 2020 Olds Tower, Lansing, Mich., for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the club secretary. No handicap over 30 is allowed, except in the Kickers (Blind Bogey). Only active members of A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

SEAVIEW A MAGNIFICENT COURSE

The twenty-third tournament of the American Medical Golfing Association at Seaview promises to be a pleasant affair. The club is one of the most elaborate in the country. The A. M. G. A. officers anticipate that some two hundred medical golfers from all parts of the United States will play in Atlantic City on June 7.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

PROGRAM OF THE OPENING GENERAL
MEETING

ALL PROGRAMS WILL BE ON DAYLIGHT SAVING TIME

Ballroom, Second Floor, Convention Hall
Tuesday, June 8, 8 p. m.

Music. WILLIAM JACKSON, Convention Organist.

Call to Order by the President, CHARLES GORDON HEYD.

Invocation. REV. GEORGE D. LAWRENCE.

Welcome to Atlantic City:

HON. CHARLES D. WHITE, Mayor of Atlantic City.

HILTON S. READ, President, Atlantic County Medical Society.

WILLIAM G. HERRMAN, President, Medical Society of New Jersey.

Announcements. WILLIAM J. CARRINGTON, Chairman, Local Committee on Arrangements.

Music. Madrigal Singers, HENRY HOTZ, Director.

Address. CHARLES GORDON HEYD.

Music. Madrigal Singers, HENRY HOTZ, Director.

Introduction and Installation of President-Elect J. H. J. UPHAM, Columbus, Ohio.

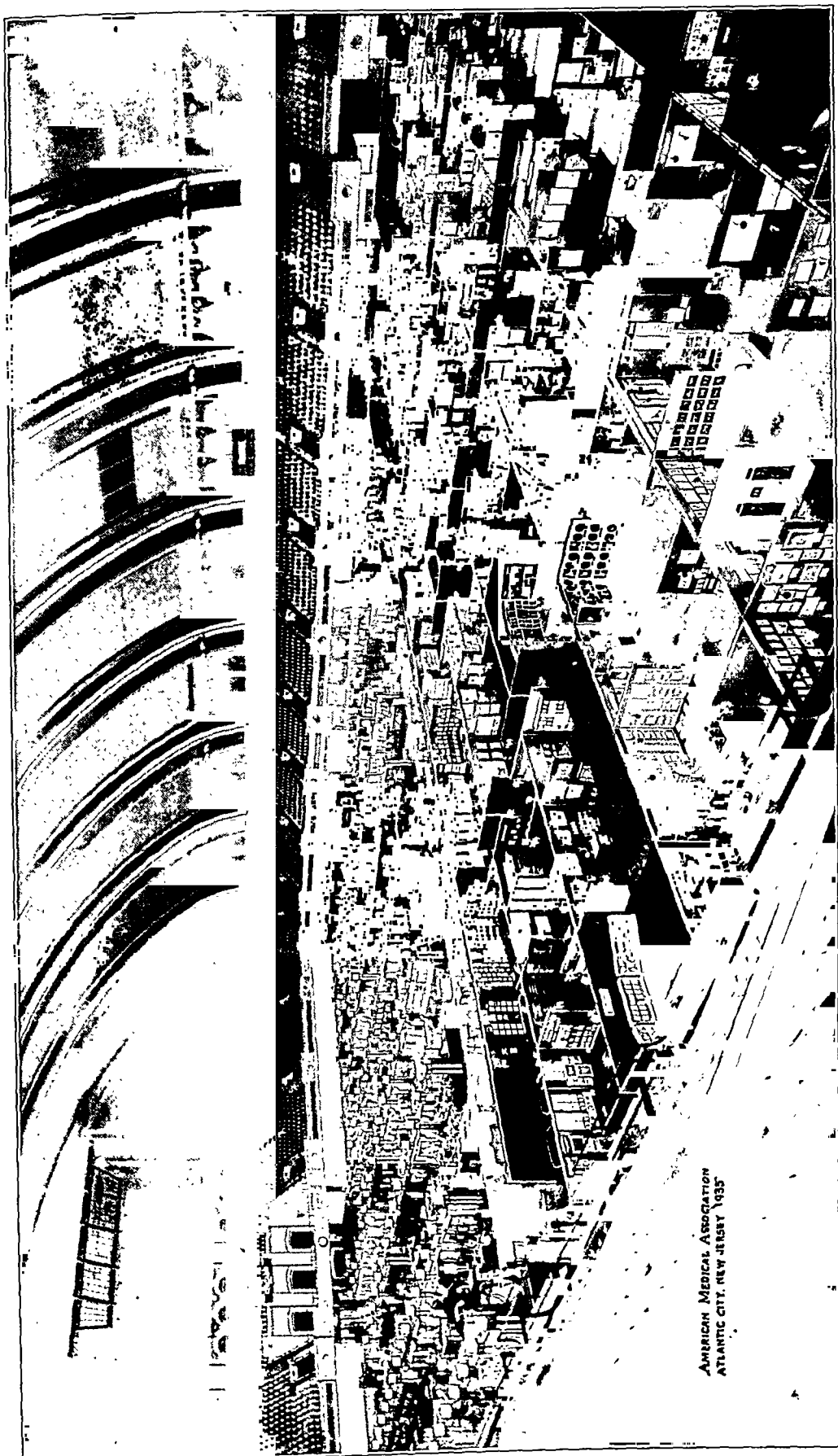
Address. J. H. J. UPHAM.

Music. Madrigal Singers, HENRY HOTZ, Director.

Presentation of Medal to Retiring President CHARLES GORDON HEYD. ROCK SLEYSER, Chairman of the Board of Trustees.

Music. Madrigal Singers, HENRY HOTZ, Director.

Postlude. WILLIAM JACKSON, Convention Organist.



AMERICAN MEDICAL ASSOCIATION
ATLANTIC CITY, NEW JERSEY 1935

THE SCIENTIFIC EXHIBIT, ATLANTIC CITY MEETING

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of Atlantic City, and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN ROOM E, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—JOHN H. MUSSEY, New Orleans.
Vice Chairman—RALPH H. MAJOR, Kansas City, Mo.
Secretary—JOSEPH T. WEARN, Cleveland.
Executive Committee—GEORGE R. MINOT, Boston; WILLIAM J. KERR, San Francisco; JOHN H. MUSSEY, New Orleans.

Wednesday, June 9—9 a. m.

Coronary Disease in Youth (Lantern Demonstration).
R. EARLE GLENDY and PAUL D. WHITE, Boston.
Discussion to be opened by H. M. MARVIN, New Haven, Conn., and W. D. STROUD, Philadelphia.
The Treatment of Acute Left Ventricular Failure (Lantern Demonstration). FRED M. SMITH, Iowa City.
Discussion to be opened by N. C. GILBERT, Chicago, and F. A. WILLIUS, Rochester, Minn.
The Frank Billings Lecture: The Cause of Pleural Shock. Air Embolism or Pleural Reflex (Lantern Demonstration). JOSEPH A. CAPPS, Chicago.
The Nature of Pregnancy Toxemias (Lantern Demonstration). JOHN P. PETERS, New Haven, Conn.
Pregnancy and Hypertension (Lantern Demonstration). J. EDWIN WOOD JR. and HAROLD G. NIX, University, Va.
Discussion on papers of DR. PETERS and DRs. WOOD and NIX to be opened by JOSEPH M. HAYMAN JR., Cleveland, and SONIA WEISS, Boston.
The Use of Sulfanilamide in the Treatment of Beta-Hemolytic Streptococcus Infections (Lantern Demonstration). PERRIN H. LONG and ELEANOR A. BLISS, Baltimore.
Discussion to be opened by CHESTER S. KEEFER, Boston, and FRANCIS F. SCHWENKER, Baltimore.

Thursday, June 10—9 a. m.

Studies with Human Influenza Virus During the Influenza Epidemic of 1936-1937 (Lantern Demonstration). THOMAS FRANCIS JR., New York.
Discussion to be opened by FRANCIS G. BLAKE, New Haven, Conn.
Chairman's Address: The Future of Internal Medicine. JOHN H. MUSSEY, New Orleans.
Newer Developments in Functional Heart Tests. GUSTAV NYLIN, Stockholm, Sweden.
Parasitism of the Tubercle Bacillus (Lantern Demonstration). WILLIAM CHARLES WHITE, Washington, D. C.
The Lasting Cure of Early Pulmonary Tuberculosis (Lantern Demonstration). J. BURNS AMBERSON, New York.
Problems in the Diagnosis and Management of Latent, Suspected and Early Clinical Tuberculosis. H. W. HETHERINGTON, Philadelphia.
Discussion on papers of DRs. WHITE, AMBERSON and HETHERINGTON to be opened by ESMOND R. LONG, Philadelphia; J. WOODS PRICE, Saranac Lake, N. Y.; BRUCE H. DOUGLAS, Detroit, and CHARLES H. COCKE, Asheville, N. C.

Friday, June 11—9 a. m.

Election of Officers

Prolonged Recumbency as a Contributory Cause of Death in Elderly Persons (Lantern Demonstration). L. B. LAPLACE and J. T. NICHOLSON, Philadelphia.
Discussion to be opened by ROBERT WILSON, Charleston, S. C., and CLARENCE L. ANDREWS, Atlantic City, N. J.
Refractory Anemia: Its Diagnosis and Treatment (Lantern Demonstration). C. P. RHOADS, New York.
Discussion to be opened by GEORGE R. MINOT, Boston, and RANDOLPH WEST, New York.
Gout (Lantern Demonstration). JOHN H. TALBOTT, Boston.
Discussion to be opened by WILLIAM S. LADD, New York, and P. S. HENCH, Rochester, Minn.
Hyperparathyroidism Simulating Paget's Disease (Lantern Demonstration). ALEXANDER B. GUTMAN and W. BARCLAY PARSONS, New York.
Discussion to be opened by WALTER BAUER, Boston.
Pulmonary Embolism (Lantern Demonstration). A. R. BARNES, Rochester, Minn.
Discussion to be opened by WILLIAM J. KERR, San Francisco; O. H. PERRY PEPPER, Philadelphia, and DAVID WARD SCANLAN, Atlantic City, N. J.
Night Blindness as a Criterion of Vitamin A Deficiency (Lantern Demonstration). HAROLD J. JEGHERS, Boston.
Discussion to be opened by M. A. BLANKENHORN, Cincinnati, and JOHN B. YOUNG, Nashville, Tenn.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN BALLROOM, SECOND FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—ROBERT S. DINSMORE, Cleveland.
Vice Chairman—ALTON OCHSNER, New Orleans.
Secretary—HENRY W. CAVE, New York.
Executive Committee—JOHN L. YATES, Milwaukee; HOWARD M. CLUTE, Boston; ROBERT S. DINSMORE, Cleveland.

Wednesday, June 9—2 p. m.

The Treatment of Craniocerebral Trauma (Lantern Demonstration). CHALMERS H. MOORE, Birmingham, Ala.
Discussion to be opened by WALTER E. DANDY, Baltimore, and R. GLEN SPURLING, Louisville, Ky.
Blood Chemistry Studies in Thyroid Crisis (Lantern Demonstration). WALTER G. MADDOCK, FREDERICK A. COLLIER and SVEND PEDERSEN, Ann Arbor, Mich.
Discussion to be opened by GEORGE CRILE JR., New York, and JOHN PAUL NORTH, Philadelphia.
Chairman's Address: Prevention of Morbidity in Thyroid Surgery. ROBERT S. DINSMORE, Cleveland.
Present Day Status of Surgery of the Heart and Pericardium. ARTHUR M. SHIPLEY, Baltimore.
Discussion to be opened by CLAUDE S. BECK, Cleveland, and ISAAC ALEXANDER BIGGER, Richmond, Va.
Congenital Hypertrophic Pyloric Stenosis in Infancy (Lantern Demonstration). EDWARD J. DONOVAN, New York.
Discussion to be opened by WILLIAM E. LADD, Boston, and ALFRED JEROME BROWN, Omaha.
Partial Gastrectomy for Gastric and Duodenal Ulcer (Lantern Demonstration). SAMUEL F. MARSHALL and EVERETT D. KIEFER, Boston.
Discussion to be opened by EVERETT D. KIEFER, Boston, and JOHN G. MATEER, Detroit.

Thursday, June 10—2 p. m.

Recent Advances in Anesthesia (Lantern Demonstration). JOHN S. LUNDY, Rochester, Minn.
Discussion to be opened by HENRY S. RUTH, Philadelphia, and RALPH M. TOVELL, Hartford, Conn.
Technical Procedures in Use of Modern Anesthetics (Lantern Demonstration). PAUL M. WOOD, New York.
Discussion to be opened by EMERY A. ROVENSTINE, New York, and H. BOYD STEWART, Tulsa, Okla.
Partial Cholecystectomy in Acute Suppurative Cholecystitis (Lantern and Motion Picture Demonstration). WILLIAM L. ESTES JR., Bethlehem, Pa.
Discussion to be opened by WILLIAM D. HAGGARD, Nashville, Tenn., and DONALD GUTHRIE, Sayre, Pa.

Instrumental Dilation of the Ampulla of Vater: Experimental and Clinical Observations (Lantern Demonstration).

ROBERT ZOLLINGER, CHARLES D. BRANCH and ORVILLE T. BAILEY, Boston.

Discussion to be opened by EDMUND ANDREWS, Chicago.

Postoperative Care of Bile Tract Surgery (Lantern Demonstration).

ROBERT LEE PAYNE, Norfolk, Va.

Discussion to be opened by EDWIN P. LEHMAN, University, Va., and HAROLD L. FOSS, Danville, Pa.

Diagnostic and Therapeutic Problems Presented by Lesions of Right Lower Quadrant (Lantern Demonstration).

OTTO CARL PICKHARDT and HENRY AARON RAFSKY, New York.

Discussion to be opened by ERNEST H. GAITHER, Baltimore.

Friday, June 11—2 p. m.

Election of Officers

Purpura Haemorrhagica, with Special Reference to Its Course and Treatment (Lantern Demonstration).

EDWARD M. HANRAHAN JR., MAXWELL M. WINTROBE and CAROLINE B. THOMAS, Baltimore.

Discussion to be opened by ALLEN O. WHIPPLE, New York, and GEORGE R. MINOT, Boston.

Present Views Regarding Irradiation as an Aid to Surgery in Cancer of the Breast (Lantern Demonstration).

WILLIAM CRAWFORD WHITE, New York.

Discussion to be opened by FRANK E. ADAIR, New York, and ERNEST M. DALAND, Boston.

The Prevention of Postoperative Adhesions About Nerve and Tendon Sutures (Lantern Demonstration).

LOYAL DAVIS and LEON J. ARIES, Chicago.

Discussion to be opened by HERBERT L. JOHNSON, Boston, and FRANCIS C. GRANT, Philadelphia.

Rectal Symptoms from the General Surgeon's Point of View.

HARVEY B. STONE, Baltimore.

Discussion to be opened by CURTICE ROSSER, Dallas, Texas, and FRANK C. YEOMANS, New York.

Right Colectomy for Malignant Disease: A Discussion of the Mortality Associated with Various Operative Procedures (Lantern Demonstration).

ARTHUR W. ALLEN, Boston.

Discussion to be opened by FRED W. RANKIN, Lexington, Ky., and FREDERICK A. COLLIER, Ann Arbor, Mich.

Further Experience with a New Tendoplastic Amputation Through the Femur at the Knee (Lantern and Motion Picture Demonstration).

C. LATIMER CALLANDER, San Francisco.

Discussion to be opened by JOSEPH S. MCGUINNESS, San Francisco, and PHILIP DUNCAN WILSON, New York.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

MEETS IN BALLROOM, SECOND FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—M. PIERCE RUCKER, Richmond, Va.

Vice Chairman—BUFORD G. HAMILTON, Kansas City, Mo.

Secretary—EVERETT D. PLASS, Iowa City.

Executive Committee—JAMES R. MCCORD, Atlanta, Ga.; LYLE G. MCNEILE, Los Angeles; M. PIERCE RUCKER, Richmond, Va.

Wednesday, June 9—9 a. m.

An Evaluation of Common Lesions of the Cervix (Lantern Demonstration).

NORMAN F. MILLER and RUSSELL L. MALCOLM, Ann Arbor, Mich.

The Diagonal Conjugate versus X-Ray Pelvimetry (Lantern Demonstration).

A. LOUIS DIPPEL, Baltimore.

Normal Expectancy in the Extremely Obese Pregnant Woman (Lantern Demonstration).

HARVEY B. MATTHEWS and MAURICE G. DER BRUCKE, Brooklyn.

The Treatment of Repeated Abortion and Repeated Antenatal and Postnatal Deaths (Lantern Demonstration).

K. DE SNOO, Utrecht, Holland.

Thursday, June 10—9 a. m.

SYMPOSIUM ON THE CLINICAL USE OF ENDOCRINE PRODUCTS

Oligomenorrhea and Amenorrhea: Causation and Treatment (Lantern Demonstration).

ROBERT T. FRANK, MORRIS A. GOLDBERGER and U. J. SALMON, New York.

The Management of Menorrhagia and Metrorrhagia by Endocrine Products (Lantern Demonstration).

JOHN C. BURCH, Nashville, Tenn.

The Endocrines in Relation to Sterility and Abortion (Lantern Demonstration).

JENNINGS C. LITZENBERG, Minneapolis.

Endocrine Treatment of Vaginitis of Children and Women After the Menopause (Lantern Demonstration).

ROBERT M. LEWIS, New Haven, Conn.

The Endocrine Treatment of Menopausal Phenomena (Lantern Demonstration).

JEAN PAUL PRATT, Detroit.

Chairman's Address: The Treatment of Eclampsia.

M. PIERCE RUCKER, Richmond, Va.

Friday, June 11—9 a. m.

Election of Officers

Evaluation by Controlled Series of Vaginal Trichomoniasis Therapies (Lantern Demonstration).

H. CLOSE HESSELTINE, Chicago.

Further Studies of the Clinical Use of the Concentrated (Hemolytic) Streptococcus Antitoxic Serum in Puerperal Fever (Lantern Demonstration).

ABRAHAM F. LASH, Chicago.

Results of Radiation Therapy for Carcinoma of the Uterus at the Woman's Hospital (Lantern Demonstration).

GEORGE GRAY WARD and NELSON B. SACKETT, New York.

Breech Deliveries: A Comparative Study of Local and General Anesthesia.

HARRIS J. TIMMERMAN, Chicago.

Hydatidiform Mole and Chorionepithelioma (Lantern Demonstration).

NICHOLAS M. ALTER, Jersey City, N. J.

Further Observations on the Use of the Anterior Pituitary-like Principle as an Intradermal Pregnancy Test (Lantern Demonstration).

JOHN HUBERMAN, H. H. ISRAELOFF and BEN HYMOWITZ, Newark, N. J.

SECTION ON OPHTHALMOLOGY

MEETS IN ROOM B, FIRST FLOOR, CONVENTION HALL

Chairman—WILLIAM L. BENEDICT, Rochester, Minn.

Vice Chairman—EMORY HILL, Richmond, Va.

Secretary—PARKER HEATH, Detroit.

Executive Committee—ARTHUR J. BEDELL, Albany, N. Y.; JOHN GREEN, St. Louis; WILLIAM L. BENEDICT, Rochester, Minn.

Wednesday, June 9—2 p. m.

Chairman's Address (Lantern Demonstration).

WILLIAM L. BENEDICT, Rochester, Minn.

On Ophthalmic Education.

WALTER R. PARKER, Detroit.

The Visual Disturbances of Trachoma (Lantern Demonstration).

HARRY S. GRADLE, Chicago.

Discussion to be opened by HANS BARKAN, San Francisco, and JOHN GREEN, St. Louis.

An Unclassified Type of Optic Neuritis (Lantern Demonstration).

GRADY CLAY and J. M. BAIRD, Atlanta, Ga.

Discussion to be opened by E. L. GOAR, Houston, Texas.

Syphilis in Relation to the Prevention of Blindness (Lantern Demonstration).

CONRAD BERENS, New York.

Discussion to be opened by E. V. L. BROWN, Chicago.

Tryparsamide Therapy of Neurosyphilis and Optic Nerve Atrophy (Lantern Demonstration).

LEO L. MAYER, Chicago.

Discussion to be opened by FREDERICK C. CORDES, San Francisco, and WALTER I. LILLIE, Philadelphia.

Ocular Disturbances in Lesions of the Mesencephalic Central Gray Matter (Lantern Demonstration).

NORMAN P. SCALA, Washington, D. C., and ERNEST A. SPIEGEL, Philadelphia.

Discussion to be opened by CLIFFORD B. WALKER, Los Angeles.

Thursday, June 10—2 p. m.

The Near Reaction of the Pupil in the Dark: A Quantitative Study (Lantern Demonstration).

F. HERBERT HAESSLER, Milwaukee.

Discussion to be opened by FRANCIS H. ADLER, Philadelphia.

The Autonomic Nervous System and Accommodation (Lantern Demonstration).

DAVID G. COGAN, Boston.

Discussion to be opened by WILLIAM H. LUEDDL, St. Louis, and ALFRED BIELSCHOWSKY, Hanover, N. H.

Late Results of Cataract Extraction.

EDWARD JACKSON, Denver.
Discussion to be opened by ALLEN GREENWOOD, Boston,
and EDWARD C. ELLETT, Memphis, Tenn.

Surgical Corrections for Enophthalmos and Exophthalmos (Lantern and Motion Picture Demonstration).

ROBERT E. MORAN, Washington, D. C.
Discussion to be opened by ARNOLD KNAPP, New York.

Demonstration Session

Friday, June 11—2 p. m.

Executive Session

Election of Officers

Formation of Drusen of the Lamina Vitrea (Lantern Demonstration). BENJAMIN RONES, Washington, D. C.

Discussion to be opened by FREDERICK H. VERHOEFF, Boston, and ARTHUR J. BEDELL, Albany, N. Y.

Blepharoptosis (Lantern Demonstration).

EDMUND B. SPAETH, Philadelphia.
Discussion to be opened by FERRIS SMITH, Grand Rapids, Mich., and DANIEL B. KIRBY, New York.

Tobacco Amblyopia:

I. Treatment of Tobacco Amblyopia with Vasodilators (Lantern Demonstration).

WALTER F. DUGGAN, New York.
Discussion to be opened by LAWRENCE T. POST, St. Louis.

II. The Importance of Diet in the Etiology and Treatment of Tobacco Alcohol Amblyopia (Lantern Demonstration). FRANK D. CARROLL, New York.

Discussion to be opened by ARTHUR M. YUDKIN, New Haven, Conn.

The Dominant Eye: Its Clinical Significance.

WALTER H. FINK, Minneapolis.
Discussion to be opened by DERRICK T. VAIL JR., Cincinnati.

SECTION ON LARYNGOLOGY, OTOTOLOGY
AND RHINOLOGY

MEETS IN ROOM B, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—ROBERT F. RIDPATH, Philadelphia.

Vice Chairman—LEROY A. SCHALL, Boston.

Secretary—GORDON B. NEW, Rochester, Minn.

Executive Committee—JOHN J. SHEA, Memphis, Tenn.; RALPH A. FENTON, Portland, Ore.; ROBERT F. RIDPATH, Philadelphia.

Wednesday, June 9—9 a. m.

Osteomyelitis of the Jaws (Lantern Demonstration).

THOMAS E. CARMODY, Denver.
Discussion to be opened by C. STEWART NASH, Rochester, N. Y.; V. H. KAZANJIAN, Boston, and ROBERT H. IVY, Philadelphia.

Fracture of the Skull Involving the Paranasal Sinuses and Mastoid (Lantern Demonstration).

CLAUDE C. COLEMAN, Richmond, Va.
Discussion to be opened by FRANCIS C. GRANT, Philadelphia; HARRY E. MOCK, Chicago, and WELLS P. EAGLETON, Newark, N. J.

The Management of Pulsion Esophageal Diverticulum Based on an Operative Experience with Seventy Cases and a Follow-Up Study of Forty-Five Cases (Lantern Demonstration). FRANK H. LAHEY, Boston.

Discussion to be opened by STUART W. HARRINGTON, Rochester, Minn., and THOMAS A. SHALLOW and W. WAYNE BABCOCK, Philadelphia.

Measuring the Sensation of Loudness: A New Approach to the Physiology of Hearing and the Functional and Differential Diagnostic Tests (Lantern Demonstration).

EDMUND PRINCE FOWLER, New York.
Discussion to be opened by WALTER HUGHSON, Abington, Pa.; DOUGLAS MACFARLAN, Philadelphia; HORACE NEWHART, Minneapolis, and FREDERICK T. HILL, Waterville, Maine.

Prophylactic Vaccination Against Intracranial Complications Following Pneumococcus Type III Mastoiditis (Lantern Demonstration). JOSEPH L. GOLDMAN, New York.

Discussion to be opened by RUSSELL L. CECIL, New York; W. E. GROVE, Milwaukee, and ISIDORE FRIESNER, New York.

Thursday, June 10—9 a. m.

Chairman's Address: A Plea for a Better Understanding Between the Laryngologist and the Vocal Teacher.

ROBERT F. RIDPATH, Philadelphia.

Otology in Relation to General Medicine (Lantern Demonstration). BURT R. SHURLY, Detroit.

Discussion to be opened by FRANK R. SPENCER, Boulder, Colo.; W. P. WHERRY, Omaha, and CLAUDE P. BROWN, Philadelphia.

Critique of the Present Treatment of Conducting Mechanism Deafness (Lantern Demonstration).

ISIDORE FRIESNER, New York.

Discussion to be opened by S. J. CROWE, Baltimore; EDWARD H. CAMPBELL, Philadelphia, and JOHN RANDOLPH PAGE, New York.

A Comment on the Treatment of Chronic Purulent Otitis Media. ROBIN HARRIS, Jackson, Miss.

Discussion to be opened by SAMUEL J. KOPETZKY, New York, and BENJAMIN H. SHUSTER, Philadelphia.

Treatment of Lateral Sinus Thrombosis with Ligation of the Internal Jugular Vein (Lantern Demonstration).

MATTHEW S. ERSNER and DAVID MYERS, Philadelphia.

Discussion to be opened by H. MARSHALL TAYLOR, Jacksonville, Fla., and MARVIN FISHER JONES, New York.

The Medical Treatment of Blood Stream Infection with Special Reference to Immunized Blood Transfusions (Lantern Demonstration). E. G. GILL, Roanoke, Va.

Discussion to be opened by JOHN A. KOLMER and JAMES A. BABBITT, Philadelphia, and EARL LE ROY WOON, Newark, N. J.

Friday, June 11—9 a. m.

Election of Officers

Congenital Occlusion of the Posterior Choana: Operative Treatment (Lantern Demonstration).

C. M. ANDERSON, Rochester, Minn.

Discussion to be opened by J. P. SCHAEFFER and HARRY P. SCHENCK, Philadelphia; R. C. GROVE, New York, and H. I. LILLIE, Rochester, Minn.

Foreign Bodies in the Food and Air Passages: Their Early and Late Effects (Lantern Demonstration).

ROYAL REYNOLDS, Washington, D. C.

Discussion to be opened by CHEVALIER JACKSON, Philadelphia; HERMAN J. MOERSCH, Rochester, Minn., and W. LIKELY SIMPSON, Memphis, Tenn.

Tumors of the True Vocal Cords: Malignant and Benign (Lantern Demonstration).

GABRIEL TUCKER, Philadelphia.

Discussion to be opened by HENRY B. ORTON, Newark, N. J.; CHARLES J. IMPERATORI, New York, and GORDON B. NEW, Rochester, Minn.

Exophthalmos as a Complication of Sinus Malignancy (Lantern Demonstration). LEROY A. SCHALL, Boston.

Discussion to be opened by ALGERNON B. REESE, New York; KARL M. HOUSER, Philadelphia, and JOSEPH C. BECK, Chicago.

Triple Primary Carcinoma in Otolaryngology (Lantern Demonstration). JOSHUA C. DROOKER, Boston.

Discussion to be opened by FRANK W. KONZELMANN and LOUIS H. CLERF, Philadelphia, and LEROY A. SCHALL, Boston.

SECTION ON PEDIATRICS

MEETS IN ROOM E, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—RALPH M. TYSON, Philadelphia.

Vice Chairman—ALDRICH C. CROWE, Ocean City, N. J.

Secretary—ALBERT D. KAISER, Rochester, N. Y.

Executive Committee—A. GRAEME MITCHELL, Cincinnati; HORTON R. CASPARIS, Nashville, Tenn.; RALPH M. TYSON, Philadelphia.

Wednesday, June 9—2 p. m.

Chairman's Address: Certain Significant Aspects of Childhood Tuberculosis. RALPH M. TYSON, Philadelphia.

Clinical Radiology in Pediatrics (Lantern Demonstration). WILLIAM E. CHAMBERLAIN, Philadelphia.

The Dietetic Treatment of Eczema in Early Infancy. LEWIS WEBB HALL, Boston.

Discussion to be opened by RALPH BOWEN, Oklahoma City, and T. WOOD CLARKE, Utica, N. Y.

- The Early Detection and Treatment of Hearing Defects in Children. HORACE NEWHART, Minneapolis.
Discussion to be opened by J. VICTOR GREENBAUM, Cincinnati, and AUSTIN A. HAYDEN, Chicago.
- The Treatment of Nephrosis in the Young Child (Lantern Demonstration). FRED W. SCHLUTZ and J. L. COLLIER, Chicago.
Discussion to be opened by SAMUEL W. CLAUSEN, Rochester, N. Y.
- The Teaching of Body Mechanics in Pediatric Practice (Lantern and Motion Picture Demonstration). CLIFFORD D. SWEET, Oakland, Calif.
Discussion to be opened by ROBERT B. OSGOOD, Boston, and ALFRED J. SCOTT, Los Angeles.

Thursday, June 10—2 p. m.

- Municipal Control of Whooping Cough (Lantern Demonstration). LOUIS W. SAUER, Evanston, Ill.
Discussion to be opened by LEROY D. FOTHERGILL, Boston, and CHARLES GILMORE KERLEY, New York.
- A Comparison Between the Use of Diphtheria Precipitated Toxoid and the Fluid Toxoid as a Preventive (Lantern Demonstration). WILLIAM H. PARK, New York.
Discussion to be opened by M. Bernard Brahdly, Mount Vernon, N. Y.
- Immunization with the Active Virus of Human Influenza: A Two Year Study (Lantern Demonstration). JOSEPH STOKES JR., Philadelphia.
Discussion to be opened by THOMAS FRANCIS JR., New York.
- Active and Passive Immunity in Poliomyelitis. JOHN A. TOOMEY, Cleveland.
Discussion to be opened by JOSEPH YAMPOLSKY, Atlanta, Ga., and JOHN FITCH LONDON, New York.
- The Prevention and Modification of Measles (Lantern Demonstration). CHARLES F. MCKHANN, Boston.
Discussion to be opened by SAMUEL KARELITZ New York, and A. CLEMENT SILVERMAN, Syracuse, N. Y.
- Isolation Technic: Its History and Results (Lantern Demonstration). PHILIP M. STIMSON, New York.
Discussion to be opened by HAVEN EMERSON, New York, and HARRY H. DONNALLY, Washington, D. C.

Friday, June 11—2 p. m.

Election of Officers

- Abnormalities of Fat Metabolism in Childhood (Lantern Demonstration). L. EMMETT HOLT JR., Baltimore.
Discussion to be opened by WALTER R. BLOOR, Rochester, N. Y., and S. J. THANNHAUSER, Boston.
- Experiences with Communicable Disease Control in Private Practice (Lantern Demonstration). C. A. STEWART and E. S. PLATOU, Minneapolis.
Discussion to be opened by LEE FORREST HILL, Des Moines, Iowa, and HENRY T. PRICE, Pittsburgh.
- The Allergic Crippled Child. MILTON B. COHEN, Cleveland.
Discussion to be opened by J. ALEXANDER CLARKE JR., Philadelphia, and W. AMBROSE MCGEE, Richmond, Va.
- Epidemic Diarrhea of the New-Born (Lantern Demonstration). JOHN L. RICE, SAMUEL FRANT and HAROLD ABRAMSON, New York.
Discussion to be opened by WILBURT C. DAVISON, Durham, N. C., and JOHN AIKMAN, Rochester, N. Y.
- Wood Tick Aparalysis in Children (Motion Picture Demonstration). E. J. BARNETT and C. L. LYON, Spokane, Wash.
Discussion to be opened by JAY I. DURAND, Seattle, and R. E. DYER, Washington, D. C.
- The Diagnosis of Heart Disease in Children (Lantern Demonstration). MAY G. WILSON, New York.
Discussion to be opened by WILLIAM D. STROUD, Philadelphia, and HYMAN GREEN, Boston.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN COMMITTEE ROOM 13, THIRD FLOOR,
CONVENTION HALL

OFFICERS OF SECTION

- Chairman—N. C. GILBERT, Chicago.
Vice Chairman—RUSSELL L. HADEN, Cleveland.
Secretary—IRVING S. WRIGHT, New York.
Executive Committee—CARL H. GREENE, New York; CHAUNCEY D. LEAKE, San Francisco; N. C. GILBERT, Chicago.

Wednesday, June 9—2 p. m.

- Effects of Induced Oxygen Want in Patients with Cardiac Pain (Lantern Demonstration). ROBERT L. LEVY, ALVAN L. BARACH and HOWARD G. BRUENN, New York.
Discussion to be opened by H. J. STEWART, New York.
- The Treatment of Coronary Sclerosis by Producing a New Blood Supply to the Heart (Lantern Demonstration). HAROLD FEIL and CLAUDE S. BECK, Cleveland.
Discussion to be opened by WALLACE M. YATER, Washington, D. C.
- Clinical Studies of Respiration: Observations on the Action of Theophylline with Ethylene Diamine on the Intrathecal and Venous Pressures and on the Bronchi as a Possible Mechanism for Its Beneficial Effect on Cheyne-Stokes Breathing, Dyspnea and Paroxysmal Dyspnea (Lantern Demonstration). JAMES A. GREENE, W. D. PAUL and A. E. FELLER, Iowa City.
Discussion to be opened by G. K. FENN, Chicago, and T. R. HARRISON, Nashville, Tenn.
- Observations on the Effects of Vitamin B (B₁) Therapy on the Polyneuritis of Alcohol Addicts. ROBERT S. GOODHART and NORMAN JOLLIFFE, New York.
Discussion to be opened by GEORGE R. COWGILL, New Haven, Conn.; MARTIN G. VORHAUS, New York, and TOM D. SPIES, Cincinnati.
- The Treatment of Undulant Fever with Intravenous Typhoid Vaccine (Lantern Demonstration). C. E. ERVIN and HENRY F. HUNT, Danville, Pa.
Discussion to be opened by FRANK J. SLADEN, Detroit, and WALTER M. SIMPSON, Dayton, Ohio.
- Pathologic Physiology of the Common Bile Duct and Its Relation to Biliary Colic (Lantern Demonstration). WALTMAN WALTERS, Rochester, Minn.
Discussion to be opened by A. C. IVY, Chicago; ROBERT L. PAYNE, Norfolk, Va., and R. RUSSELL BEST, Omaha.

Thursday, June 10—2 p. m.

- Chairman's Address. N. C. GILBERT, Chicago.
- Observations on Acacia Therapy in Nephrosis (Lantern Demonstration). EUGENE M. LANDIS, Philadelphia.
Discussion to be opened by A. F. HARTMANN, St. Louis, and NORMAN M. KEITH, Rochester, Minn.
- Human Autonomic Pharmacology (Lantern Demonstration). ABRAHAM MYERSON, Boston.
- Clinical Observations on the Effects of Benzadrine Sulfate (Lantern Demonstration). D. L. WILBUR, A. R. MACLEAN and E. V. ALLEN, Rochester, Minn.
Discussion on papers of DR. MYERSON and DRS. WILBUR, MACLEAN and ALLEN to be opened by A. J. CARLSON, Chicago, and WALTER B. CANNON, Boston.
- The Effect of Diuresis by Mercurials on the Clinical Course of Congestive Heart Failure (Lantern Demonstration). LAURENCE E. HINES, Chicago.
Discussion to be opened by ARTHUR C. DEGRAFF, New York, and JAMES G. CARR and CHAUNCEY C. MAHER, Chicago.
- Antipneumococcus Rabbit Serum as a Therapeutic Agent in Lobar Pneumonia. F. L. HORSFALL JR., KENNETH GOODNER, COLIN M. MACLEOD and ALBERT H. HARRIS 2D, New York.
Discussion to be opened by J. G. M. BULLOWA and RUSSELL L. CECIL, New York.

Friday, June 11—2 p. m.

Election of Officers

- The Prolongation of Insulin Action (Lantern Demonstration). D. A. SCOTT, A. M. FISHER and C. H. BEST, Toronto, Canada.
- Protamine Zinc Insulin: Clinical Application (Lantern Demonstration). HERMAN O. MOSENTHAL, New York.
- Protamine Insulin: Clinical Experience (Lantern Demonstration). EDWIN J. KEPPLER, Rochester, Minn.
- What Protamine Insulin Might Accomplish for the Diabetic Problem in the United States. ELLIOTT P. JOSLIN, Boston.
Discussion to be opened by C. N. H. LONG, New Haven, Conn.; WALTER R. CAMPBELL, Toronto, Canada, and CARL H. GREENE, New York.

**SECTION ON PATHOLOGY AND
PHYSIOLOGY**MEETS IN COMMITTEE ROOM 13, THIRD FLOOR,
CONVENTION HALL**OFFICERS OF SECTION**

Chairman—W. E. GARREY, Nashville, Tenn.

Vice Chairman—R. R. KRACKE, Atlanta, Ga.

Secretary—J. J. MOORE, Chicago.

Executive Committee—ELIAS P. LYON, Minneapolis; HENRY C. SWEANY, Chicago; W. E. GARREY, Nashville, Tenn.

Wednesday, June 9—9 a. m.Sarcoma Resulting from the Ingestion of a Crude, Ether-
Extracted Wheat Germ Oil (Lantern and Motion Picture
Demonstration).L. G. ROWNTREE, GEORGE M. DORRANCE and E. F.
CICCONI, Philadelphia.Krukenberg Tumors of the Ovary (Lantern Demonstration).
LAMAR A. GRAY, Baltimore.Disgerminoma of the Ovary (Lantern Demonstration).
EMIL NOVAK, Baltimore.Changing Aspects in Tumor Pathology (Lantern Demonstration).
FRANCIS CARTER WOOD, New York.Studies on the Pathology of Vascular Disease (Lantern Demonstration).
M. C. WINTERNITZ, New Haven, Conn.Culture of Human Marrow: The Length of Life of the
Neutrophils, Eosinophils and Basophils of Normal Blood
as Determined by Comparative Cultures of Blood and
Sternal Marrow from Healthy Persons (Lantern Demonstration).
EDWIN E. OSGOOD, Portland, Ore.The Diagnostic Value and the Limitations of the Trepphine and
Puncture Methods for Biopsy of the Sternal Bone Marrow
(Lantern Demonstration).

WILLIAM DAMESHEK and HENRY HENSTELL, Boston.

Thursday, June 10—9 a. m.**SYMPOSIUM**

Chairman's Address: Some Aspects of Cardiac Control (Lantern Demonstration). W. E. GARREY, Nashville, Tenn.

Calculation of Cardiac Output and Analysis of Cardiac Failure
from Blood Pressure and Pulse Wave Velocity Measurements
(Lantern Demonstration).

H. C. BAZETT, Philadelphia.

The Energy Metabolism of the Heart in Failure (Lantern Demonstration). MAURICE B. VISSCHER, Minneapolis.

Effect of Electric Shock on the Heart (Lantern Demonstration).
H. B. WILLIAMS, New York.The Origin of Heart Sounds and Their Changes in Myocardial
Disease (Lantern Demonstration).

J. K. LEWIS and WILLIAM DOCK, San Francisco.

The Placenta as a Modified Arteriovenous Fistula, Considered
in Relation to the Circulatory Adjustments to Pregnancy
(Lantern Demonstration). C. SIDNEY BURWELL, Boston.

Constrictive Pericarditis: Physiologic and Pathologic Considerations (Lantern Demonstration).

ALFRED BLALOCK, Nashville, Tenn.

Discussion to be opened by ISAAC STARR JR. and CHARLES
C. WOLFERTH, Philadelphia; GEORGE E. FAHR, Minneapolis,
and GEORGE DOCK, Pasadena, Calif.**Friday, June 11—9 a. m.****Election of Officers**

A Study in Subcutaneous Oxygen Therapy.

M. HERBERT BARKER and THOMAS SIMPSON, Chicago.

Etiology and Pathogenesis of Lesions in the Central Nervous
System, Associated with Artificial Fever Therapy.

FRANK W. HARTMAN, Detroit.

Discussion to be opened by WALTER M. SIMPSON, Dayton,
Ohio.Pulmonary Asbestosis: The Asbestosis Body and Similar
Objects in the Lung (Lantern Demonstration).

KENNETH M. LYNCH, Charleston, S. C.

Problems on the Pathogenesis and Treatment of Acute Anterior
Poliomyelitis (Lantern Demonstration).PAUL H. HARMON, WILLIAM M. KRIGSTEN and HENRY
N. HARKINS, Chicago.

Diagnostic Methods in Brucella Infection (Lantern Demonstration).

S. E. GOULD, Etoise, Mich., and I. FOREST HUBBLESON,
East Lansing, Mich.Newer Methods of Diagnosis and Specific Treatment of Systemic Streptococcus Infections (Lantern Demonstration).
EDWARD C. ROSENOW and FORDYCE R. HEILMAN, Rochester, Minn.The Adequacy of a Simple Blood Sedimentation Rate Test and
Its Practical Value in Clinical Medicine (Lantern Demonstration).
EDWIN G. BANNICK, Rochester, Minn.**SECTION ON NERVOUS AND MENTAL
DISEASES**MEETS IN COMMITTEE ROOM 12, THIRD FLOOR,
CONVENTION HALL**OFFICERS OF SECTION**

Chairman—HENRY R. VIETS, Boston.

Vice Chairman—B. LANDIS ELLIOTT, Kansas City, Mo.

Secretary—PAUL C. BUCY, Chicago.

Executive Committee—H. DOUGLAS SINGER, Chicago; HANS
H. F. REESE, Madison, Wis.; HENRY R. VIETS, Boston.**Wednesday, June 9—2 p. m.**Sensory Discrimination in Monkey, Chimpanzee and Man After
Lesions of the Parietal Lobe (Lantern and Motion
Picture Demonstration).THEODORE C. RUCH, JOHN F. FULTON and WILLIAM J.
GERMAN, New Haven, Conn.Gerstman Syndrome of Finger Agnosia (Lantern Demonstration).
J. M. NIELSEN, Los Angeles.Discussion on papers of DRs. RUCH, FULTON and GERMAN
and DR. NIELSEN to be opened by JOSEPH P. EVANS,
Montreal, Canada, and ISRAEL S. WECHSLER, New
York.Treatment of Athetosis by Section of the Extrapyramidal
Tracts in the Spinal Cord (Lantern and Motion Picture
Demonstration).TRACY J. PUTNAM, Boston.
Discussion to be opened by ERIC OLDBERG, Chicago, and
JOHN F. FULTON, New Haven, Conn.**THE PREFRONTAL AREA**Cortical Mechanisms in Emotion (Lantern Demonstration).
CARLYLE F. JACOBSEN, G. FINCH and J. L. KENNEDY,
New Haven, Conn.Experimental Analysis of the Effects of Localized Cerebral
Injury in Man (Lantern Demonstration).

WARD C. HALSTEAD, Chicago.

Psychosurgery: Effect on Certain Mental Symptoms of Surgical
Interruption of Pathways in the Frontal Lobe
(Lantern Demonstration).JAMES W. WATTS and WALTER FREEMAN, Washington,
D. C.Discussion on papers of DRs. JACOBSEN, FINCH and
KENNEDY, DR. HALSTEAD and DRs. WATTS and FREEMAN
to be opened by RALPH W. BARRIS, Washington,
D. C.; RICHARD M. BRICKNER, New York; S. SPANFORD
ACKERLY, Louisville, Ky., and H. DOUGLAS SINGER,
Chicago.**Thursday, June 10—2 p. m.**Benign Lymphocytic Chorionomeningitis: Laboratory Studies
with the Virus of and Their Bearing on the Infection
in Man. CHARLES ARMSTRONG, Washington, D. C.
Discussion to be opened by PAUL F. DICKENS, Washington,
D. C., and JOSEPHINE B. NEAL, New York.The Operative Treatment of Major Trigeminal Neuralgia
(Lantern Demonstration).FRANCIS C. GRANT, Philadelphia.
Discussion to be opened by WALTER E. DANDY, Baltimore,
and M. M. PEET, Ann Arbor, Mich.The Prognosis in Transverse Lesions of the Spinal Cord
(Motion Picture Demonstration). ERIC OLDBERG, Chicago.Discussion to be opened by JOHN FAVILL, Chicago, and
JAMES L. POPPEN, Boston.A Surgical Procedure for Hydrocephalus with Spina Bifida
(Lantern Demonstration).ALBERT P. D'ERRICO, Dallas, Texas.
Discussion to be opened by TRACY J. PUTNAM, Boston,
and R. GLEN SPURLING, Louisville, Ky.Vitamin Therapy of Muscular Dystrophy (Lantern and Motion
Picture Demonstration).DANIEL V. CONWILL, Halstead, Kan.
Discussion to be opened by B. LANDIS ELLIOTT, Kansas
City, Mo., and W. E. ASH, Council Bluffs, Iowa.

- A Clinical Evaluation of Quinine in Myotonia and of Prostigmin in Myasthenia (Motion Picture Demonstration).
FOSTER KENNEDY and ALEXANDER WOLF, New York.
- A New Test for Diagnosis of Certain Headaches: The Cephalalgogram (Lantern Demonstration).
TEMPLE S. FAY, Philadelphia.
Discussion to be opened by WILDER PENFIELD, Montreal, Canada, and JAMES W. WATTS, Washington, D. C.

Friday, June 11—2 p. m.

Election of Officers

- Chairman's Address: Neurology; Past and Present (Lantern Demonstration). HENRY R. VIETS, Boston.
- Hypoglycemia: Neurologic and Neuropathologic Study (Lantern Demonstration).
FREDERICK P. MOERSCH and JAMES W. KERNOHAN, Rochester, Minn.
Discussion to be opened by FRANK N. ALLAN and STANLEY COBB, Boston.

DEMENTIA PRAECOX

- The Status of Research in Dementia Praecox in 1936 (Lantern Demonstration). NOLAN D. C. LEWIS, New York.
- Hypoglycemic Insulin Treatment: A Brief Review.
JOSEPH WORTIS and KARL M. BOWMAN, New York.
- Experiences in the Insulin-Hypoglycemia Treatment of Cases of Schizophrenia of Long Duration.
D. EWEN CAMERON, Worcester, Mass., and R. G. HOSKINS, Boston.
- Hypoglycemia Treatment of Schizophrenia with Particular Reference to the Qualitative Study of Remissions: A Preliminary Report.
CHARLES A. RYMER, JOHN D. BENJAMIN and FRANKLIN G. EBAUGH, Denver.
Discussion on papers of DR. LEWIS, DR. WORTIS and BOWMAN, DR. CAMERON and HOSKINS and DR. RYMER, BENJAMIN and EBAUGH to be opened by RICHARD H. YOUNG, Omaha; LLOYD H. ZIEGLER, Albany, N. Y., and FRANK N. ALLAN, Boston.
- Electro-Encephalography in the Psychoses (Lantern Demonstration).
FREDERICK LEMERE, Medical Lake, Wash.
Discussion to be opened by HALLOWELL DAVIS, Boston, and RALPH W. GERARD, Chicago.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN ROOM A, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

- Chairman—PAUL A. O'LEARY, Rochester, Minn.
- Vice Chairman—CHARLES C. DENNIE, Kansas City, Mo.
- Secretary—BEDFORD SHELMIER, Dallas, Texas.
- Executive Committee—JEFFREY C. MICHAEL,* Houston, Texas;
HARRY R. FOERSTER, Milwaukee; PAUL A. O'LEARY, Rochester, Minn.

*Deceased.

Wednesday, June 9—2 p. m.

- Chairman's Address: Present Day Status of Treatment of Neurosyphilis. PAUL A. O'LEARY, Rochester, Minn.
- Hemiatrophia Faciei Progressiva.
ELMORE B. TAUBER and LEON GOLDMAN, Cincinnati.
Discussion to be opened by EARL D. OSBORNE, Buffalo.
- Pyogenic Relapse and Light Sensitiveness in Certain Dermatoses: Influence of an Intercurrent Infection Factor.
JOHN H. STOKES and J. LAMAR CALLAWAY, Philadelphia.
Discussion to be opened by MARION B. SULZBERGER, New York.
- Relationship of Pityrosporum Ovale to Seborrheic Dermatitis: Further Investigations (Lantern Demonstration).
ROY L. KILE and M. F. ENGMAN SR., St. Louis.
Discussion to be opened by RICHARD S. WEISS, St. Louis.
- Torch Oil Dermatitis: Its Relation to Interdigital Epidermomycosis (Lantern Demonstration).
ADOLPH G. KAMMER, East Chicago, Ind.
Discussion to be opened by HARRY R. FOERSTER, Milwaukee.
- Stomatitis Venenata: Report of an Unusual Case of Mucous Membrane and Cutaneous Sensitivity to Oil of Anise (Lantern Demonstration).
ADOLPH B. LOVEMAN, Louisville, Ky.
Discussion to be opened by JOHN GODWIN DOWNING, Boston.

- Results of Leukopenic Index Tests in Atopic Dermatitis (Lantern Demonstration). ELMER M. RUSTEN, Minneapolis.
Discussion to be opened by THEODORE L. SQUIER, Milwaukee.

Thursday, June 10—2 p. m.

- The Cardiovascular Syphilitic Patient.
LEWIS B. ROBINSON, New York.
Discussion to be opened by HARRY L. BAER, Pittsburgh.
- The Problem of Seroresistant Syphilis (So-Called Wassermann Fastness) (Lantern Demonstration).
JOSEPH EARLE MOORE and PAUL PADGET, Baltimore.
Discussion to be opened by FRANCIS E. SENEAR, Chicago.
- The Clinical Evaluation of Iodobismitol in the Treatment of Syphilis.
CHARLES W. BARNETT and GEORGE V. KULCHAR, San Francisco.
Discussion to be opened by M. T. VAN STUDDIFORD, New Orleans.
- The Intradermal Chancroid Bacillary Antigen Skin Test as a Further Aid in the Differential Diagnosis of Venereal Diseases.
ROBERT B. GREENBLATT and EVERETT S. SANDERSON, Augusta, Ga.
Discussion to be opened by HAROLD N. COLE, Cleveland.
- The Absorption of Drugs and Poisons Through Skin and Mucous Membranes (Lantern Demonstration).
DAVID I. MACHT, Baltimore.
Discussion to be opened by ISAAC R. PELS, Baltimore.
- Lupus Erythematosus: Its Increased Incidence in Philadelphia, with Studies Pertaining to the Disease.
JOHN B. LUDY and EDWARD F. CORSON, Philadelphia.
Discussion to be opened by C. GUY LANE, Boston.
- Ammonium Succinimido-Aurate: A Gold Compound of Low Toxicity (Lantern Demonstration).
M. E. OBERMAYER and S. WILLIAM BECKER, Chicago.
Discussion to be opened by CARROLL S. WRIGHT, Philadelphia.

Friday, June 11—2 p. m.

Election of Officers

- Naevus Epithelioma Cyliindromatosis (Lantern Demonstration).
GEORGE W. BINKLEY, Cleveland.
Discussion to be opened by FRED D. WEIDMAN, Philadelphia.
- Relapsing Febrile Nodular Nonsuppurative Panniculitis (Lantern Demonstration).
RICHARD J. BAILEY, Rochester, Minn.
Discussion to be opened by E. W. NETHERTON, Cleveland.
- Melanin Production as Induced by Aniline Dye (Indelible Ink) (Lantern Demonstration). HERMAN SHARLIT, New York.
Discussion to be opened by SAMUEL M. PECK, New York.
- The Intra-Oral Use of Superficial X-Rays: A Report of the Use of the Chaoul Tube (Lantern Demonstration).
LESTER HOLLANDER and JOSEPH M. SHELTON, Pittsburgh.
Discussion to be opened by FREDERICK M. JACOB, Pittsburgh.
- Epidermal Carcinoma as a Biologic Phenomenon: The Mutation Theory (Lantern Demonstration).
RICHARD L. SUTTON JR., Kansas City, Mo.
Discussion to be opened by EVERETT C. FOX, Dallas, Texas.
- Discussion of an Original Method of Treatment for Warts.
JACK G. HUTTON, Denver.
Discussion to be opened by WILLIAM HOWARD HAILEY, Atlanta, Ga.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN ROOM C, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

- Chairman—L. D. BRISTOL, New York.
- Vice Chairman—J. F. BREDECK, St. Louis.
- Acting Secretary—IRL C. RIGGIN, Richmond, Va.
- Executive Committee—ROBERT H. RILEY, Baltimore; R. R. SAYERS, Washington, D. C.; L. D. BRISTOL, New York.

Wednesday, June 9—9 a. m.

- Volatile Solvents as a Problem in Industrial Medicine (Lantern Demonstration).
W. J. MCCONNELL, New York.
Discussion to be opened by HENRY FIELD SMYTH, Philadelphia.

Filtrable Viruses in Infection of Human Upper Respiratory Tract. YALE KNEELAND JR., New York.
Discussion to be opened by RUSSELL L. CECIL, New York.

Chairman's Address: Next Steps in the Organization and Administration of Preventive and Industrial Medicine and Public Health. L. D. BRISTOL, New York.

Social Security and the Doctor. E. A. MEYERDING, St. Paul.
Discussion to be opened by HOLMAN TAYLOR, Fort Worth, Texas.

Endemic Typhus in Native Rodents (Lantern Demonstration). R. E. DYER, Washington, D. C.
Discussion to be opened by JOHN J. PHAIR, Baltimore.

Thursday, June 10—9 a. m.

A Study of Silicosis. PHILIP B. MATZ, Washington, D. C.
Discussion to be opened by R. R. SAYERS, Washington, D. C.

Correlation on the Positive Tuberculin Reaction and the Shape of the Chest (Lantern Demonstration).

S. A. WEISMAN, Minneapolis.

The Relative Value of Schilling Differential Counts, the Sedimentation Rates and Lymphocyte-Monocyte Ratios in Tuberculosis of Childhood (Lantern Demonstration).

W. AMBROSE MCGEE, Richmond, Va.

Discussion to be opened by FRANK B. STAFFORD, Charlottesville, Va.

Intensive Case Finding Work on Tuberculosis (Lantern Demonstration). HENRY F. VAUGHAN, Detroit.

Chronic Mercurialism in the Hatters' Fur-Cutting Industry (Lantern Demonstration).

PAUL A. NEAL and R. R. JONES, Washington, D. C.
Discussion to be opened by D. CHESTER BROWN, Danbury, Conn.

Friday, June 11—9 a. m.

Election of Officers

Active Immunization of Human Beings Against Tetanus by Means of Tetanus Toxoid (Lantern Demonstration).

HERMAN GOLD, Chester, Pa.

Discussion to be opened by LOUIS TUFT, Philadelphia.

The Performance of Serodiagnostic Tests for Syphilis in State Laboratories (Lantern Demonstration).

WALTER M. SIMPSON, Dayton, Ohio.

Discussion to be opened by FREDERICK H. LAMB, Davenport, Iowa.

The Campaign Against Syphilis in New York City. WALTER CLARKE, New York.

Discussion to be opened by CHARLES C. DENNIE, Kansas City, Mo.

Industrial Preventive Medicine: A Plan for Control of Occupational Diseases. C. D. SELBY, Detroit.

The Management of the Cardiac Patient in Industry (Lantern Demonstration).

R. B. CRAIN and MORRIS E. MISSAL, Rochester, N. Y.

Personal Experiences with Gas Bacillus Infection. D. A. BENNETT, Canton, Ill.

SECTION ON UROLOGY

MEETS IN ROOM A, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—HENRY W. E. WALTHER, New Orleans
Vice Chairman—NELSE F. OCKERBLAD, Kansas City, Mo.
Secretary—WILLIAM P. HERBST, Washington, D. C.
Executive Committee—STANLEY R. WOODRUFF, Jersey City, N. J.; JOHN H. MORRISSEY, New York; HENRY W. E. WALTHER, New Orleans.

Wednesday, June 9—9 a. m.

SYMPOSIUM ON PEDIATRIC UROLOGY

Pyelitis of Infancy: The Late Results in Untreated Cases (Lantern Demonstration).

LAWRENCE R. WHARTON and HARRIET G. GUILD, Baltimore.

Tumors of the Genito-Urinary Tract in Children (Lantern Demonstration). MEREDITH F. CAMPBELL, New York.

Nonobstructive Upper Urinary Tract Dilatations in Children (Lantern Demonstration).

ALEXANDER B. HEPLER, Seattle.

Discussion on papers of DRs. WHARTON and GUILD, DR. CAMPBELL and DR. HEPLER to be opened by N. G. ALCOCK, Iowa City; P. M. BUTTERFIELD, New York, and VINCENT VERMOUTEN, Johannesburg, South Africa.

A New Operation for Hypospadias (Lantern Demonstration). O. S. LOWSLEY, New York.

Discussion to be opened by J. EASTMAN SHEEHAN, New York.

The Origin and Growth of Renal Calculi (Lantern Demonstration). ALEXANDER RANDALL, Philadelphia.

Silent Renal Calculi (Lantern Demonstration). JAMES T. PRIESTLEY and WILLIAM F. BRAASCH, Rochester, Minn.

Signs of Vitamin A Deficiency in the Eye Correlated with Urinary Lithiasis (Lantern Demonstration). WILLIAM J. EZICKSON and JACOB B. FELDMAN, Philadelphia.

Discussion on papers of DR. RANDALL, DRs. PRIESTLEY and BRAASCH and DRs. EZICKSON and FELDMAN to be opened by J. D. BARNEY, Boston; ROBERT H. HERBST, Chicago; LEON HERMAN, Philadelphia; LINWOOD D. KEYSER, Roanoke, Va.; JOHN H. MORRISSEY, New York; MILEY B. WESSON, San Francisco, and STANLEY R. WOODRUFF, Jersey City, N. J.

Thursday, June 10—9 a. m.

The Effect of Neosphenamine in Urinary Infections (Lantern Demonstration). JOHN M. PACE, Dallas, Texas.

Chairman's Address: Urinary Antisepsis.

HENRY W. E. WALTHER, New Orleans.

Discussion on papers of DRs. PACE and WALTHER to be opened by ANSON L. CLARK, Oklahoma City, and MONROE E. GREENBERGER, New York.

Changes in the Urinary Tract Associated with Lesions of the Genital Tract in Women (Lantern Demonstration). HERMAN L. KRETSCHMER and A. E. KANTER, Chicago.

Discussion to be opened by ROSEMARY SHOEMAKER, Rochester, Minn., and WILLIAM E. STEVENS, San Francisco.

SYMPOSIUM ON GENITO-URINARY MALIGNANCY

The Treatment of Primary Carcinoma of the Male Urethra (Lantern Demonstration).

HENRY A. R. KREUTZMANN, San Francisco.

Recent Advances in the Diagnosis and Treatment of Tumor of the Testis.

FRANK HINMAN, San Francisco, and T. O. POWELL, Los Angeles.

Malignant Growths of the Bladder (Lantern Demonstration). O. A. NELSON, Seattle.

Renal Neoplasms: A Review of Cases and Indications for Treatment (Lantern Demonstration).

THEODORE R. FETTER, Philadelphia.

The Treatment of Urinary Tract Malignancy with Super-voltage Roentgen Irradiation.

ARBOR D. MUNGER, Lincoln, Neb.

Discussion on papers of DR. KREUTZMANN, DRs. HINMAN and POWELL, DR. NELSON, DR. FETTER and DR. MUNGER to be opened by H. C. BUMPUS JR., Pasadena, Calif.; JAMES L. ESTES, Tampa, Fla.; Russell S. FERGUSON and Alfred F. Hocker, New York, and HUGH H. YOUNG, Baltimore.

Friday, June 11—9 a. m.

Election of Officers

Decapsulation and Nephrostomy in Anuria Due to Bichloride or Phenol Poisoning (Lantern Demonstration).

GEORGE R. LIVERMORE, Memphis, Tenn.

Discussion to be opened by NELSE F. OCKERBLAD, Kansas City, Mo.

Undergraduate Urologic Instruction (Lantern and Motion Picture Demonstration). ROGER W. BARNES, Los Angeles.

Discussion to be opened by GEORGE F. CAHILL, New York, and R. M. LE COMTE, Washington, D. C.

SYMPOSIUM ON GONOCOCCIC INFECTIONS

The Program of the Public Health Service in the More Effective Control of Gonorrhea.

R. A. VONDERLEHR, Washington, D. C.

- The Treatment of Gonococcic Infections with Sulfanilamide (Para-Aminobenzenesulfonamide) (Lantern Demonstration). J. A. C. COLSTON and JOHN E. DEES, Baltimore.
- The Significance of Variation in Morphology of the Gonococcus (Lantern Demonstration).

RUSSELL D. HERROLD, Chicago.

- An Evaluation of Laboratory Methods Used for the Diagnosis of Gonococcic Infections in the Male and Female (Lantern Demonstration).

CHARLES M. CARPENTER, Rochester, N. Y.

- Artificially Induced Fever in the Treatment of Gonococcic Infection in the Male.

W. W. SCOTT and S. L. WARREN, Rochester, N. Y.

- Color Motion Picture Demonstration of Laboratory Cultural Technic of the Gonococcus. H. C. HESSELTINE, Chicago.

Discussion on papers of DR. VONDERLEHR, DR. COLSTON and DEES, DR. HERROLD, DR. CARPENTER and DR. SCOTT and WARREN to be opened by WILLIAM BIERMAN, New York; HENRY B. GWYNN, Washington, D. C.; RALPH H. JENKINS, New Haven, Conn., and FREDERICK S. SCHOFIELD, Philadelphia.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN COMMITTEE ROOM 12, THIRD FLOOR,

CONVENTION HALL

OFFICERS OF SECTION

- Chairman—FREMONT A. CHANDLER, Chicago.
Vice Chairman—JOHN DUNLOP, Pasadena, Calif.
Secretary—ROBERT V. FUNSTEN, Charlottesville, Va.
Executive Committee—ROBERT D. SCHROCK, Omaha; ARTHUR T. LEGG, Boston; FREMONT A. CHANDLER, Chicago.

Wednesday, June 9—9 a. m.

- Comparison of Treatments and Their Results in Fractures of the Shaft of the Femur (Lantern Demonstration).

E. L. ELIASON, Philadelphia.
Discussion to be opened by JOHN ALBERT KEY, St. Louis, and P. H. SCARDINO, Houston, Texas.

- End Result of Twenty-One Years of Spine Fusion for Tuberculosis.

W. H. VON LACKUM, New York.
Discussion to be opened by ARCHIBALD F. O'DONOGHUE, Sioux City, Iowa; Roland Hammond, Providence, R. I., and R. PLATO SCHWARTZ, Rochester, N. Y.

- The Etiology of Cartilaginous Exostoses and Giant Cell Tumors of the Bone (Lantern Demonstration).

J. DEWEY BISGARD, Omaha.
Discussion to be opened by L. D. SMITH, Milwaukee; MARION BECKETT HOWORTH, New York, and I. WILLIAM NACHLAS, Baltimore.

- The Dynamic Biologic Relativity of Nerve, Muscle and Bone Pressure During Growth and Maturity.

EBEN J. CAREY, Milwaukee.
Discussion to be opened by ARTHUR STEINDLER, Iowa City; EDWARD L. COMPERE, Chicago, and MANDELL SHIMBERG, Wadsworth, Kan.

- The Importance of Adequate Fracture Treatment in Rural Hospitals.

W. T. HAMMOND, Easton, Md.
Discussion to be opened by ROBERT WILKINSON JOHNSON JR., Baltimore; VOIGHT MOONEY, Pittsburgh, and Z. B. ADAMS, Boston.

- A Comparative Study of the Surgical and Nonoperative Method of Treating Bone and Joint Tuberculosis (Lantern Demonstration).

LEO MAYER, New York.
Discussion to be opened by JAMES TORRENCE RUGH, Philadelphia; BENJAMIN P. FARRELL, New York, and ALBERT L. BERSHON, Toledo, Ohio.

Thursday, June 10—9 a. m.

- Lesions of the Intervertebral Disks.

W. J. MIXTER, J. S. BARR and A. O. HAMPTON, Boston.
Discussion to be opened by GEORGE I. BAUMAN, Cleveland; SAMUEL J. LANG, Evanston, Ill., and C. FRED FERCIOT, Lincoln, Neb.

- The Neurologic Significance of Low Back Pain (Lantern Demonstration).

R. GLEN SPURLING and F. H. MAYFIELD, Louisville, Ky.
Discussion to be opened by G. E. HAGGART, Boston; CHARLES MURRAY GRATZ, New York, and E. S. GURDJIAN, Detroit.

- The Relation of Fascia Lata to Low Back Conditions.

FRANK R. OBER, Boston.
Discussion to be opened by ALAN DEF. SMITH, New York; MAX HARBIN, Cleveland, and EDWIN W. RYERSON, Chicago.

- Differential Diagnosis in Low Back Pain (Lantern Demonstration).

ARTHUR STEINDLER, Iowa City.
Discussion to be opened by JOHN C. WILSON, Los Angeles; WILLIAM BARNETT OWEN, Louisville, Ky., and A. R. SHANDS JR., DURHAM, N. C.

- Arthrodesis in Osteo-Arthritis of the Hip (Lantern and Motion Picture Demonstration).

R. WATSON JONES, Liverpool, England.

- The Treatment of Chronic Arthritis of the Foot (Lantern Demonstration).

JOHN G. KUHN, Boston.
Discussion to be opened by Robert B. Osgood, Boston; PAUL P. SWETT, Hartford, Conn., and Louis E. PAPURT, Cleveland.

Friday, June 11—9 a. m.

- Election of Officers

- Pathologic Fractures (Lantern Demonstration).

RALPH K. GHORMLEY, Rochester, Minn.

- The Occurrence of an Osseous Dyscrasia in Gastrectomized Puppies (Lantern Demonstration).

A. C. IVY and SMITH FREEMAN, Chicago.
Discussion to be opened by DANIEL H. LEVINTHAL, Chicago; WALTER G. STUCK, San Antonio, Texas, and PAUL W. LAPIDUS, New York.

- Malunited Colles' Fractures (Lantern and Motion Picture Demonstration).

WILLIS C. CAMPBELL, Memphis, Tenn.
Discussion to be opened by H. R. CONN, Akron, Ohio; FRANK D. DICKSON, Kansas City, Mo., and GEORGE E. BENNETT, Baltimore.

- Chairman's Address: Localized Overgrowth of the Extremities and Spine (Lantern Demonstration).

FREMONT A. CHANDLER, Chicago.

- Simplified Technic of On Lay Grafts for all Ununited Fractures in Acceptable Position (Lantern and Motion Picture Demonstration).

D. B. PHENISTER, Chicago.
Discussion to be opened by J. S. SPEED, Memphis, Tenn.; EARL D. MCBRIDE, Oklahoma City, and LEWIS CLARK WAGNER, New York.

- Fractures of the Os Calcis (Lantern Demonstration).

H. W. SPIERS, Los Angeles.
Discussion to be opened by RUDOLPH S. REICH, Cleveland; J. A. LINK, Springfield, Ohio, and WILLIAM B. CARRELL, Dallas, Texas.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN ROOM C, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

- Chairman—LOUIS A. BUIE, Rochester, Minn.
Vice Chairman—HENRY L. BOCKUS, Philadelphia.
Secretary—A. H. AARON, Buffalo.
Executive Committee—WALTER A. FANSLER, Minneapolis; ERNEST H. GAITHER, Baltimore; LOUIS A. BUIE, Rochester, Minn.

Wednesday, June 9—2 p. m.

- A Study of Peptic Ulcer from Necropsy Records (Lantern Demonstration).

SIDNEY ALEXANDER PORTIS and RICHARD HERMANN JAFFÉ, Chicago.

Discussion to be opened by JOHN L. KANTOR, New York; CLAYTON W. GREENE, Buffalo, and SARA M. JORDAN, Boston.

- The Influence of the Duodenum on the Functions of the Small Intestine (Lantern Demonstration).

THOMAS G. MILLER, Philadelphia; WILLIAM O. ABBOTT, Wynnewood, Pa., and WALTER G. KARR, Philadelphia.
Discussion to be opened by EUGENE P. PENNERGRASS and HARRY SHAY, Philadelphia.

- Acute Abdominal Catastrophes.

IRVIN ABELL, Louisville, Ky.
Discussion to be opened by FRANK H. LAHEY, Boston; ROBERT LEE PAYNE, Norfolk, Va., and HARVEY B. STONE, Baltimore.

Coccygodynia and Pain in the Superior Gluteal Region and Down the Back of the Leg: Observations on the Causation of Such Pain by Tonic Spasm of the Levator Ani, Coccygeus and Piriformis Muscles, and Its Relief by Massage of These Muscles (Lantern Demonstration).

GEORGE HENRY THIELE, Kansas City, Mo.

Discussion to be opened by FRANK D. DICKSON and FERNANDO I. WILSON, Kansas City, Mo.

Vesical Dysfunction Following Abdominoperineal Resection of Carcinoma of Rectum (Lantern and Motion Picture Demonstration).

MALCOLM ROBERT HILL and CYRIL BRIAN COURVILLE, Los Angeles.

Discussion to be opened by DUDLEY A. SMITH, San Francisco, and DESCUM C. MCKENNEY, Buffalo.

Mucosal Pattern Technic and Kymographic Records of the Esophagus and Stomach (Lantern Demonstration).

EDWARD HOLMAN SKINNER, Kansas City, Mo.

Discussion to be opened by WENDELL G. SCOTT, St. Louis, and LESTER LEVYN, Buffalo.

The Formation and Treatment of Experimental Peptic Ulcers Produced by Cinchophen (Lantern Demonstration).

JESSE LOUIS BOLLMAN, Rochester, Minn.

Discussion to be opened by GEORGE B. EUSTERMAN, Rochester, Minn., and LESTER R. DRAGSTEDT, Chicago.

Thursday, June 10—2 p. m.

Chairman's Address: The Value of Specialization in Medicine.

LOUIS A. BUIE, Rochester, Minn.

Management of Colostomy (Motion Picture Demonstration).

DUDLEY A. SMITH, San Francisco.

Discussion to be opened by THOMAS E. JONES, Cleveland, and ROLLIN R. BEST, Omaha.

Right-Sided Colitis: Life History and Treatment.

BURRILL BERNARD CROHN and ALBERT ASHTON BERG, New York.

Discussion to be opened by RICHARD B. CATTELL, Boston, and J. ARNOLD BARGEN, Rochester, Minn.

What Happens to Patients Who Have Diverticulosis and Diverticulitis of the Colon (Lantern Demonstration)?

PHILIP WALLING BROWN and D. M. MARCLEY, Rochester, Minn.

Discussion to be opened by HENRY L. BOCKUS, Philadelphia, and CHESTER M. JONES, Boston.

A New Method of Diagnosis in Bacillary Dysentery.

DANIEL NATHAN SILVERMAN, New Orleans.

Discussion to be opened by JOHN H. MUSSER, New Orleans, and JOSEPH FELSEN, New York.

Pancreatic Fistula (Lantern Demonstration).

JOHN MILTON MCCAUGHAN, St. Louis.

Discussion to be opened by HOWARD M. CLUTE, Boston, and WILLIAM T. COUGHLIN, St. Louis.

Gastric Motor Disturbances Following Laparotomy.

LOUIS EDWARD BARRON, New Haven, Conn., and GEORGE MORRIS CURTIS, Columbus, Ohio.

Discussion to be opened by A. F. R. ANDRESEN, Brooklyn, and STOCKTON KIMBALL, Buffalo.

Friday, June 11—2 p. m.

Election of Officers

Gastritis: Gastroscopic Studies (Lantern Demonstration).

ERNEST HOWARD GAITHER, Baltimore, and JAMES L. BORLAND, Jacksonville, Fla.

Discussion to be opened by THOMAS R. BROWN, Baltimore, and RUDOLF SCHINDLER, Chicago.

The Importance of Surgery in Hematemesis Accompanied with Pyloric Obstruction (Lantern and Motion Picture Demonstration).

ANTHONY BASSLER, New York.

Discussion to be opened by ALBERT JOSEPH SULLIVAN, New Haven, Conn.

The Mechanism of Production of Digestive Symptoms Associated with Urologic Disturbances (Lantern and Motion Picture Demonstration).

PAUL BROWN WELCH, Miami, Fla.

Discussion to be opened by CHARLES L. HARTSOCK, Cleveland, and CLARENCE G. BANDLER, New York.

Treatment of Operable Rectal and Anal Cancer in Poor Surgical Risks (Lantern Demonstration).

GEORGE ERNEST BINKLEY, New York.

Discussion to be opened by DOUGLAS QUICK, New York, and CLEMENT JOSEPH DE BERE, Chicago.

Low Grade Partial Small Intestinal Obstruction (Lantern Demonstration).

LAY MARTIN, Baltimore.

Discussion to be opened by OWEN H. WANGENSTEEN, Minneapolis, and JULIUS FRIEDENWALD, Baltimore.

Intracutaneous Response to Bowel Exudate Antigens from Ulcerative Colitis and Its Relation to Presence of Virus: Comparison with Frei Reaction and Its Etiologic Significance in Colitis (Lantern Demonstration).

MOSES PAULSON, Baltimore.

Discussion to be opened by IRVING GRAY, Brooklyn.

Chronic Cholecystitis versus Irritable Colon (Lantern Demonstration).

SAMUEL ALLEN WILKINSON JR., Boston.

Discussion to be opened by CARL H. GREENE, New York; CLARENCE F. G. BROWN, Chicago, and RUSSELL S. BOLES, Philadelphia.

SECTION ON RADIOLOGY

MEETS IN ROOM D, FIRST FLOOR, CONVENTION HALL

OFFICERS OF SECTION

Chairman—ROSS GOLDEN, New York.

Vice Chairman—B. R. KIRKLIN, Rochester, Minn.

Secretary—JOHN T. MURPHY, Toledo, Ohio.

Executive Committee—JOHN W. PIERSON, Baltimore; EDWARD L. JENKINSON, Chicago; ROSS GOLDEN, New York.

Wednesday, June 9—2 p. m.

A Pathologic Study of Seventy-Five Patients Injected with Thorium Dioxide Sol for the Purpose of Making Hepatosplenograms (Lantern Demonstration).

WALLACE M. YATER and EUGENE R. WHITMORE, Washington, D. C.

Some Clinical Applications of Roentgen Kymography (Lantern Demonstration).

SYDNEY E. JOHNSON, Louisville, Ky.

Chairman's Address: Comments on Pyloric Spasm and Gastritis (Lantern Demonstration).

ROSS GOLDEN, New York.

Regional Ileitis (Lantern Demonstration).

JOSEPH JELLIN, Los Angeles.

Roentgen Diagnosis of Contusions of the Kidney.

MAX RITVO and DAVID B. STEARNS, Boston.

Pathologic Conditions of the Spine: Painful Disturbances of the Intervertebral Foramina (Lantern Demonstration).

LEE A. HADLEY, Syracuse, N. Y.

Thursday, June 10—2 p. m.

Obstructive Emphysema and Atelectasis in Influenza: A New Approach (Lantern Demonstration).

WILLIAM SNOW and CHARLES S. B. CASSASA, New York.

The Roentgen Aspect of Sympathetic Neuroblastoma (Lantern Demonstration).

HOWARD P. DOUB, Detroit.

A Survey of the Undergraduate Teaching of Radiology in the Medical Schools of the United States (Lantern Demonstration).

CLAUDE MOORE, Washington, D. C.

Experiences in Teaching Radiology to Undergraduate Students.

EUGENE P. PENDERGRASS, Philadelphia.

Graduate Education and Training of Radiologists (Lantern Demonstration).

B. R. KIRKLIN, Rochester, Minn.

Bronchus Carcinoma (Lantern Demonstration).

WALTER L. MATTICK and EUGENE M. BURKE, Buffalo.

Friday, June 11—2 p. m.

Election of Officers

Roentgen Therapy of Acute Pneumonias.

EUGENE V. POWELL, Temple, Texas.

Cancer of the Thyroid (Lantern Demonstration).

HUGH F. HARE and NEIL SWINTON, Boston.

The Heavily Filtered Roentgen Treatment of Superficial Epitheliomas (Lantern Demonstration).

E. A. MERRITT and R. RHETT RATHBONE, Washington, D. C.

The Value of Supervoltage Roentgen Therapy (Lantern Demonstration).

TRAIAN LEUCUTIA, Detroit.

Russell H. Boggs Memorial Lecture: The Value of Preoperative and Postoperative Irradiation in Carcinoma of the Breast (Lantern Demonstration).

G. E. PFAHLER and JACOB H. VASTINE, Philadelphia.

Treatment of Mammary Cancer. U. V. PORTMANN, Cleveland.

Lung Changes After Radiation (Lantern Demonstration).

HARRIET CARSWELL MCINTOSH and SOPHIE SMITZ, New York.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will occupy the north end of the main floor and the stage of the Atlantic City Auditorium. The same general arrangement of booths and decorations will be carried out as in former years. In addition to the groups of exhibits sponsored by the fifteen sections of the Scientific Assembly there will be a special program on pneumonia conducted under the auspices of the Section on Practice of Medicine, and motion picture programs put on by the Sections on Ophthalmology, on Nervous and Mental Diseases, on Orthopedic Surgery and on Obstetrics, Gynecology and Abdominal Surgery. In cooperation with the American Heart Association there will be an exhibit symposium on heart disease covering all phases of the subject. The Board of Trustees has made appropriations for two special exhibits on the subjects of fractures and anesthesia.

Admission to the Scientific Exhibit will be limited to individuals wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

Following are the representatives to the Scientific Exhibit from the various sections:

FRED M. SMITH, Iowa City, Section on Practice of Medicine.
LESTER R. WHITAKER, Boston, Section on Surgery, General and Abdominal.

H. CLOSE HESSELTINE, Chicago, Section on Obstetrics, Gynecology and Abdominal Surgery.

GEORGIANA DVORAK-THEOBALD, Oak Park, Ill., Section on Ophthalmology.

LOUIS J. I. BURNS, Philadelphia, Section on Laryngology, Otolaryngology and Rhinology.

F. THOMAS MITCHELL, Memphis, Tenn., Section on Pediatrics.

WALLACE M. YATER, Washington, Section on Pharmacology and Therapeutics.

F. W. KONZELMANN, Philadelphia, Section on Pathology and Physiology.

PETER BASSOE, Chicago, Section on Nervous and Mental Diseases.

C. W. FINNERUD, Chicago, Section on Dermatology and Syphilology.

PAUL A. DAVIS, Akron, Ohio, Section on Preventive and Industrial Medicine and Public Health.

R. S. FERGUSON, New York, Section on Urology.

JESSE T. NICHOLSON, Philadelphia, Section on Orthopedic Surgery.

J. A. BARGEN, Rochester, Minn., Section on Gastro-Enterology and Proctology.

E. E. DOWNS, Woodbury, N. J., Section on Radiology.

Special Exhibit on Anesthesia

The exhibit on anesthesia this year is intended to be the first of a series on the science and art of modern anesthesia. The 1937 exhibit will stress the fundamentals, with emphasis on physiology and pharmacology. The exhibit is presented under the auspices of a general committee composed of D. Chester Brown, chairman, Danbury, Conn., Frank H. Lahey, Boston, and Paul Nicholas Leech, Chicago, assisted by members of the Associated Anesthetists of the United States and Canada, the American Society of Anesthetists, and the American Society of Regional Anesthesia.

In addition to continuous demonstrations by a competent corps of demonstrators there will be talks on anesthesia, both morning and afternoon, each day throughout the week in an area adjoining the exhibits. A pamphlet has been prepared for distribution.

Special Exhibit on Fractures

The exhibit on fractures is continued again this year along somewhat the same lines as last year. The special exhibit committee appointed by the Committee on Scientific Exhibit of the Board of Trustees is composed of the following:

Frank D. Dickson, Kansas City, Mo.

Walter Estell Lee, Philadelphia.

Kellogg Speed, chairman, Chicago.

There will be an advisory committee as follows:

ISIDORE COHN,
New Orleans.

H. EARLE CONWELL,
Fairfield, Ala.

FREDERIC J. COTTON,
Boston.

RICHARD B. DILLEHUNT,
Portland, Ore.

ELDRIDGE L. ELIASON,
Philadelphia.

LEO ELOESSER,
San Francisco.

GEORGE W. HAWLEY,
Bridgeport, Conn.

MELVIN S. HENDERSON,
Rochester, Minn.

JAMES M. HITZROT,
New York.

WILLIAM L. KELLER,
Washington, D. C.

ROY D. MCCLURE,
Detroit.

FRANK R. OBER,
Boston.

DALLAS B. PHENISTER,
Chicago.

J. SPENCER SPEED,
Memphis, Tenn.

The following subjects will be considered:

1. Plaster of Paris: Making and Storing.
2. Application of Plaster of Paris.
3. Fracture of the Lower End of the Radius.
4. Fracture of the Spine—Compression.
5. Fracture of the Ankle.
6. First Aid Treatment of Fractures of the Lower Extremities.

Demonstrations will be given continuously throughout the week. A special folder has been prepared for distribution in connection with the exhibit.

The following physicians will take part in the demonstration:

R. L. Anderson, Charleston, W. Va.
William Bates, Philadelphia, Pa.

G. I. Bauman, Cleveland, Ohio
J. Dewey Bisgard, Omaha, Neb.

John A. Brooke, Philadelphia, Pa.
Frement A. Chandler, Chicago, Ill.

Paul C. Colonna, New York, N. Y.
Harold R. Conn, Akron, Ohio

Edward T. Crossan, Philadelphia, Pa.
T. McKean Downs, Bryn Mawr, Pa.

John Dunlop, Pasadena, Calif.
Donald C. Durman, Saginaw, Mich.

E. L. Eliason, Philadelphia, Pa.
Harry Farrell, Philadelphia, Pa.

C. Fred Ferciot, Lincoln, Neb.
Eben W. Fiske, Pittsburgh, Pa.

L. K. Ferguson, Philadelphia, Pa.
J. A. Green, Rockford, Ill.

W. A. Hausman Jr., Allentown, Pa.
Drury Hinton, Drexel Hill, Pa.

Robert Impink, Philadelphia, Pa.
Paul N. Jepson, Philadelphia, Pa.

Louis Kaplan, Philadelphia, Pa.
J. M. King, Pittsburgh, Pa.

Orville C. King, Philadelphia, Pa.
Harry E. Knox, Philadelphia, Pa.

J. G. Kuhns, Boston, Mass.
Henry C. Marble, Boston, Mass.

James W. Martin, Omaha, Neb.
Thomas E. Meany, Chicago, Ill.

Henry Milch, New York, N. Y.
Frank G. Murphy, Chicago, Ill.

Earl D. McBride, Oklahoma City, Okla.

Jesse Nicholson, Philadelphia, Pa.
John Paul North, Philadelphia, Pa.

E. Payne Palmer, Phoenix, Ariz.
William Parker, Merion Station, Pa.

W. J. Potts, Oak Park, Ill.
Wells C. Reid, Goodrich, Mich.

Dean L. Rider, Chicago, Ill.
R. C. Robertson, Chattanooga, Tenn.

Norman S. Rothschild, Philadelphia, Pa.
William J. Ryan, Philadelphia, Pa.

Lemuel D. Smith, Milwaukee, Wis.
Calvin M. Smyth, Jr., Philadelphia, Pa.

Walter Stuck, San Antonio, Texas
Thomas J. Summey, Moorestown, N. J.

Horace E. Turner, Chicago, Ill.
D. R. Ulmer, Terra Haute, Ind.

Charles S. Venable, San Antonio, Texas
Jay D. Vyn, Grand Rapids, Mich.

Dudley P. Walker, Bethlehem, Pa.
Samuel J. Waterworth, Clearfield, Pa.

George Wagoner, Bryn Mawr, Pa.
I. R. Watkins, Aberdeen, Wash.

DeForest P. Willard, Philadelphia, Pa.
John H. Wolf, Germantown, Pa.

V. W. Murray Wright, Philadelphia, Pa.

SECTION EXHIBITS

Section on Practice of Medicine

M. X. SULLIVAN, Georgetown University, Washington, D. C.:

Biochemical Tests of Possible Clinical Value: Exhibit demonstrating colorimetric methods of estimating cystine in finger nails, urine and blood, and of glutathione and vitamin C in tissue and urine; charts presenting findings in health and disease, and covering references to published work.

CHARLES A. DOAN, BRUCE K. WISEMAN and CARL V. MOORE, Ohio State University, Columbus:

The Pathologic Physiology, Differential Diagnosis and Treatment of Hematologic Dyscrasias: Exhibit of graphs, charts and photomicrographs illustrating the following studies: lymphoblastomas and lymphadenopathy diseases, congenital hemolytic jaundice, thrombocytopenic purpura, agranulocytic angina, hypochromic microcytic and hyperchromic macrocytic anemias, polycythemia vera, tuberculosis; the cellular reactions to hyperpyrexia; data on bone marrow, blood volume and plasma iron studies; demonstration of the supravital method of staining and studying living blood and tissue cells.

J. RUSSELL TWISS, R. FRANKLIN CARTER and CARL H. GREENE, New York Post Graduate Hospital, New York:

Results of Treatment in Gallbladder Disease (Medical and Surgical): Exhibit of charts showing the results of medical and surgical treatment following specific treatment, which has

been based on a complete diagnostic work-up for the purpose of determining the indications for treatment in each case; the conclusions are the result of investigations carried on for the past seven years; motion picture.

J. W. CUTLER, Henry Phipps Institute, BAYARD S. HERR and F. R. PARK, Graduate Hospital, Philadelphia:

The Blood Sedimentation Test—An Aid in Diagnosis and Prognosis: Exhibit illustrating the fundamental characters of the blood sedimentation test; (1) it is nonspecific and occurs in many diseases characterized by disturbed stability of the blood; (2) it has distinct value as a diagnostic lead in indicating the presence of serious disease not infrequently before the disease can be recognized by the usual clinical and laboratory methods; (3) it also has value in diagnosis in a qualitative sense by indicating the intensity of the disease in the same sense as fever or pulse rate or blood count, but more exactly; (4) it is of distinct value in prognosis and as a guide in treatment, and will reflect more accurately the real condition of the patient than the usually accepted procedures; (5) the technic is simple and will give reliable and accurate results under average conditions.

J. WEST MITCHELL and PAUL L. McLAIN, Pittsburgh:

Peripheral Vascular Diseases: Demonstration of physiology and treatment. Exhibit of charts and paintings of principal peripheral vascular diseases with special reference to classification, differential diagnosis, and pulsation studies; working model of a leg showing arteries and veins in normal size and a capillary bed with a mechanical heart maintaining circulation of fluid through vessels, demonstrating hydrodynamics involved in (1) normal circulation, (2) occlusion of vessels at any given point, (3) vascular exercises (Buerger type).

EDWARD S. DILLON and W. WALLACE DYER, Philadelphia:

Diabetes Mellitus—Its Complications and Treatment: Exhibit of motion pictures and transparencies showing (a) coma and its treatment, gangrene and infection, the slow acting insulins; (b) standardization of the diabetic patient, treatment of insulin hypoglycemia and preoperative and postoperative care of the surgical diabetic patient, diabetic surgery, including leg amputation, toe amputation and incision of a carbuncle, the modern diabetic clinic, its organization and management; (c) a mannequin demonstration of the organization of a diabetic department; (d) placards illustrating (1) the increasing importance of diabetes mellitus from a public health point of view; (2) contributing causes of and the prevention of gangrene in the diabetic; (3) preparation of a modern diabetic diet.

HUGO FREUND, Harper Hospital, Detroit, and SAMUEL S. ALTSCHULER, W. J. Seymour Hospital, Eloise, Mich.:

Clinical Studies with Crystalline Insulin: Comparison of Standard, Crystalline, Protamine and Protamine Zinc: Exhibit of charts and tables showing (a) effect of crystalline insulin on blood sugar in the nondiabetic; (b) use of crystalline insulin in diabetic patients; (c) comparison of crystalline insulin with standard insulin; (d) comparison of crystalline insulin with protamine insulin; (e) zinc content of the different insulins, and (f) correlation of the insulin effects with their zinc contents.

H. L. SMITH, Mayo Clinic, Rochester, Minn.:

Fainting Spells Resulting from Hypersensitive Carotid Sinus Reflexes: Exhibit of motion picture showing attacks of syncope induced by stimulating the carotid sinus, with and without convulsions; the macroscopic and microscopic anatomy of the carotid sinus; mounted specimens of the carotid sinuses of different animals; photographs of the microscopic anatomy of the carotid sinus; records of animal experiments showing results of stimulation of the nerve of Hering by direct current, demonstrating the effect on heart rate, blood pressure and respiration; tracings showing respirations during induced attacks; electrocardiographic study showing effect of stimulation of the carotid sinus in patients with hypersensitive carotid sinuses, clinical diagnosis, prognosis and treatment.

ELMER L. DEGOWIN and W. L. RANDALL, Department of Internal Medicine, State University of Iowa, Iowa City:

Renal Damage from Blood Transfusion, Clinical Course in Man and Experimental Production in Dogs: Exhibit of transparencies depicting the clinical course and pathologic changes

in man developing anuria from blood transfusion; experimental work showing that hemoglobinuria in dogs with alkaline urines causes no renal lesions or chemical evidences of renal insufficiency; hemoglobinuria in dogs with acid urines causes precipitation and crystallization of pigment in renal tubules with consequent tubular obstruction and uremia.

EDWARD F. HARTUNG and Associates, New York:

The Treatment of Chronic Arthritis: Exhibit of pictures outlining the effective and generally recognized measures for treating chronic arthritis: constitutional therapy, diet, drug therapy, nonspecific protein therapy, hemolytic streptococcus vaccines and filtrates, orthopedic treatment, the correction of postural defects, and the relief of pain by nerve block.

MARTIN G. VORHAUS, New York:

Studies in Vitamin B₁: Exhibit showing effects of vitamin B₁ therapy in gout, various cases of osteo-arthritis and states of lowered metabolism; in addition a survey of the work of others in the same field is correlated showing the entire recent therapeutic indications of vitamin B₁.

JOHN D. CURRENCE and Associates, New York Post-Graduate Medical School and Hospital, Columbia University, New York:

Physical Therapy in Arthritis: Exhibit of pictures and graphs demonstrating the application of physical therapy (electrotherapy and hydrotherapy) in arthritis and the reactions to be expected on the blood sedimentation rate, red blood cell count, white blood cell count, hemoglobin, differential blood count.

JOSEPH FELSEN, New York:

Intestinal Manifestations of Systemic Disease and Their Clinical Significance: Exhibit showing that the intestine may be regarded as possessing a dual excretory mechanism comprising (1) the direct intestinal excretory route and (2) the indirect hematogenous excretory route. The dual excretory mechanism of the intestine is intimately linked with that of the kidneys, skin and lungs, the tetrad constituting what may be termed the reciprocal excretory mechanism of the body. Intestinal manifestations in systemic disease are the result of the related action of these two mechanisms. The lesions produced are shown in the following diseases: leukemia, agranulocytosis, staphylococci, streptococci, pneumococci and meningococci bacteremias, chorionepithelioma, arteriosclerosis, rheumatic intestinal necrosis, periarteritis nodosa, bacillary dysentery, amebiasis, tuberculosis, pharyngogenic hematogenous streptococci peritonitis, plumbism, status lymphaticus, toxic lymphoid hyperplasias. The following diagnostic and therapeutic procedures are demonstrated: intestinal transilluminator, the use of color filters in sigmoidoscopy, intermittent intestinal aspiration.

EDWIN E. OSGOOD and INEZ BROWNLEE, Division of Experimental Medicine, University of Oregon Medical School, Portland, Ore.:

The Culture of Human Marrow: Exhibit demonstrating the methods developed for the culture of human marrow; an improved apparatus which provides the functions of a heart, lung and kidney for tissue culture; charts, colored illustrations and microscopic slides from the marrow cultures showing the progress which has been made toward the solution of the problems involved; mitotic figures, phagocytosis of bacteria and erythrocytes, evidence for in vitro deposition of hemoglobin, and living, moving cells demonstrated under microscopes; chart showing the histogenesis of the leukocytes and erythrocytes and a proposed simplified nomenclature based on evidence from marrow cultures; problems which offer promise of solution by this method outline; culture characteristics of marrow from patients with leukemias and anemias compared with those of normal marrow.

WILLIAM DAMESHEK and HENRY H. HENSTELL, Boston:

The Sternal Bone Marrow Biopsy; Trephine and Puncture Method: Exhibit dealing with (1) the trephine method: technic; types of preparations obtained: sections, smears, sections useful for general topography, degree of cellularity, visualization of abnormal cellular islands; smears valuable for differential counts and study of individual cells; biopsy of greatest value in cases presenting obscure anemia, especially those with reduction in white cells and platelets; illustrative cases with descriptions

of blood and bone marrow pictures and final diagnosis: (aleukemic leukemia, sarcoma and other malignant conditions metastasizing to marrow, Hodgkin's disease, aplastic anemia, pernicious anemia; (2) the puncture method: technic; type of preparation obtained; comparison of results with trephine method; limitations and disadvantages; advantages; (3) correlation of bone marrow and blood picture; study of bone marrow in various conditions; the importance of understanding the pathologic physiology "behind" the blood picture.

SYMPOSIUM ON PNEUMONIA

The symposium on pneumonia is presented by the Section on Practice of Medicine under the guidance of a committee composed of Donald B. Armstrong, Russell L. Cecil and Fred M. Smith, chairman. The following exhibits and talks will be given:

JESSE G. M. BULLOWA, CLARE WILCOX, BENJAMIN WOLFMAN, HERMAN D. RATISH and EVELYN GREENBAUM, New York:

Management of the Pneumonias: Exhibit of charts showing results of serum treatment and methods of using serum, including therapeutic rabbit serum; methods of administering oxygen without a tent; treatment of pulmonary edema with sucrose; indications for other therapeutic measures; pneumococcus typing.

RUSSELL L. CECIL, LOUIS I. DUBLIN and DONALD B. ARMSTRONG, Metropolitan Life Insurance Company, New York:

Pneumonia Control: Exhibit of charts, graphs and specimens showing incidence and distribution of pneumonia; etiology, diagnosis, serum therapy, prognosis, pathology and the requirements of a public health program, emphasizing the need for early diagnosis and skilled medical and nursing care.

Lectures on Pneumonia: Special talks and lectures will be given throughout the week in an area adjoining the exhibits.

Section on Surgery, General and Abdominal

GROUP EXHIBIT: Frank H. Lahey and Associates, Lahey Clinic, Boston:

Transilluminated drawings and roentgenograms of various surgical and clinical subjects, as follows: (1) esophageal pulsion diverticulum, two stage operation; (2) total and subtotal gastrectomy; (3) common diseases of the stomach; (4) intrathoracic goiter, intratracheal anesthesia; (5) sciatica diagnosis and management; (6) bronchoscopic diagnosis of carcinoma of the lung; (7) subdural hematoma; (8) trifacial neuralgia, diagnosis and management.

WILLIAM J. HOFFMAN, New York:

Treatment of Cancer by Surgery and Irradiation: Exhibit of transparencies illustrating methods employed in the treatment of cancer in various regions of the body, including cancer of the lip, tongue, tonsil, pharynx, breast, metastatic nodes, skin and cervix; demonstration of the combinations of surgery and radiation in the treatment of cancer and to some extent the indications for surgery or irradiation in the modern treatment of cancer.

JOHN S. LUNDY, L. H. MOUSEL, E. B. TUOHY and R. C. ADAMS, Mayo Clinic, Rochester, Minn.:

Technic of Regional Anesthesia: Exhibit showing the technic of deep and superficial cervical, brachial, paravertebral, intercostal, peridural, spinal, posterior splanchnic, dorsal sympathetic, lumbar sympathetic, sacral, caudal, trigeminal and mandibular block anesthesia and block to facilitate operation for cataract by means of life size models; in one model the left half of the entire back shows the important superficial landmarks for the points of approach, while the other half shows a dissection down to the level and including the spinal cord and its branches, thus making it possible to show the site at which the solution is deposited in each type of block anesthesia.

C. LATIMER CALLANDER, San Francisco:

Surgical Anatomic Specimens Illustrating a New Amputation Through the Femur at the Knee: Exhibit of charts, drawings, photographs and dissected specimens illustrating anatomy of the knee regions, as well as depicting steps in the amputation.

GEORGE A. WYETH, New York:

Cancer Cases Treated by Electrosurgery: Exhibit of photographs of cases with equipment illustrating (1) that it is now possible to know before beginning treatment or in time to be of value to the patient (a) what kind of a tumor it is, (b) the degree of its malignancy, (c) whether it is a radiosensitive or a radioresistant tumor; (2) that electrosurgery is merely an adjunct in the treatment of these cases and is solely a matter of technic; (3) that this technic extends the limits of operability in cancer cases; (4) that a certain permanence follows this technic.

A. C. SCOTT JR., Scott and White Hospital, Temple, Texas:

Retrotracheal Thyroid Projections; Relationship to Recurrent Exophthalmic Goiter: Exhibit of statistics, drawings, charts and mouldages showing pathologic specimens of enlarged thyroid gland; diagrammatic mouldages demonstrating the position of the esophagus and trachea in relation to the enlarged thyroid and its retrotracheal lobes; motion picture film demonstrating the retrotracheal thyroid projections.

ELLIOTT C. CUTLER and ROBERT ZOLLINGER, Peter Bent Brigham Hospital, Boston:

The Technic of Common Surgical Procedures: Exhibit of pen and ink drawings illustrating in detail the various steps of the common surgical operations as carried out at Peter Bent Brigham Hospital.

N. FREDERICK HICKEN and R. RUSSELL BEST, Omaha:

Mammography: The Roentgenographic Diagnosis of Breast Tumors by Contrast Visualization: Exhibit of contrast roentgenograms demonstrating an effective method of visualizing the breast, showing that, if such radiopaque substances as stabilized thorium dioxide sol, lipiodine and carbon dioxide are introduced into the milk ducts, the resulting stereoscopic roentgenograms give an accurate anatomic pattern of the injected ducts; any pathologic condition which alters the size, shape or configuration of the ductal pattern can be readily detected; lipoma, fibrolipoma, papilloma, carcinoma, cysts, abscesses and galactoceles have been diagnosed by these visualization studies; contrast mammograms afford an excellent method of studying the physiologic changes that occur in the mammary gland during puberty, pregnancy, lactation and the menopause; the technic employed and the diagnostic value of these visualization studies are portrayed by transparencies, mouldages, stereoscopic mammograms and motion pictures.

G. M. DORRANCE, J. W. BRANSFIELD and J. H. GUNTER, Philadelphia:

Fractures of the Jaws: Exhibit of photographs and roentgenograms showing methods of treating fractures from the earliest times up to the present day, such as bandaging, external appliances, extra-oral and intra-oral appliances, monomaxillary splint, intermaxillary splint, wire bands and bone grafts, with comments on each group and each method; photographs illustrating the different variety of fractures; classifications, detailed description and illustration of the different methods for treating each fracture.

CLAIRE L. STRAITH and WILLIAM A. LANGE, Detroit:

Plastic Surgery, Especially in Automobile Injuries: Exhibit showing that if the application of the principles of plastic surgery were applied to the treatment of traffic accident wounds at the first treatment or operation it would greatly minimize the resultant scars and leave fewer deformities; demonstration of many of these principles in detail and the correction of other deformities with which the practitioner comes in contact; several simplified methods of treating facial bone fractures which can be used by any surgeon without special equipment.

HILGER PERRY JENKINS, Department of Surgery, University of Chicago, Chicago:

Catgut Absorption: An Experimental and Clinical Study: Exhibit dealing with the absorption of chromic catgut of different sizes and brands in the tissues under varying conditions; digestion tests of catgut and the relationship between the digestion time in acid pepsin and the duration in the tissues; the effect of gastric juice on catgut absorption; etiologic factors in abdominal wound disruption and the significance of the absorption time of catgut used in abdominal wound closure.

ROBERT E. MORAN, Georgetown Medical School, Washington, D. C.:

Plastic Surgery: Exhibit demonstrating a new operation for exophthalmos, "lateral decompression of orbit"; correction of enophthalmos with cartilage transplants; a new operation for webbed fingers using buried full thickness grafts; plastic operations about orbit, nose, mouth and neck; comparison of full thickness grafts and pedicle grafts to hand and weight bearing surfaces; a group of buried grafts under scar tissue and granulations; animated motion pictures and model of (mechanism) exophthalmos in exophthalmic goiter.

NORMAN E. FREEMAN, Harrison Department Research Surgery, University of Pennsylvania, Philadelphia:

The Peripheral Blood Flow in Surgical Shock: Exhibit showing the method used for the determination of the volume flow of blood through the hand; charts presenting the normal blood flow and the effect of cold, pain, fear and asphyxia on the peripheral circulation; the reduction in the flow of blood which was found in clinical cases of surgical shock is illustrated; by means of a motor-driven circulatory schema, the relationship between blood volume, heart rate, blood pressure and blood flow is shown.

JAMES A. JACKSON and JEROME T. JEROME, Jackson Clinic, Madison, Wis.:

Bone Surgery: Exhibit of (a) transparencies demonstrating various types of injuries, including special instruments and appliances used in their management; (b) transparencies showing bone tumors in various classifications; (c) charts and diagrams illustrating aspects of these subjects.

HERBERT L. JOHNSON, Boston:

Absorbable Sutures and Insulating Patches Made from Human and Bovine Fetal Membranes: Exhibit of gross and microscopic specimens of animal tissues showing comparative local reaction and absorption rate of insulating patches and spun sutures made from bovine allantoic membrane versus: patches and sutures made from "catgut," human amniotic membrane and animal peritoneum; drawings of cow's gravid uterus depicting arrangement of the fetal membranes; posters and legends, viewing boxes and colored transparencies.

ARNOLD S. JACKSON and J. NEWTON SISK, Jackson Clinic, Madison, Wis.:

Diseases of the Gastro-Intestinal Tract: Exhibit of charts, drawings and paintings depicting cancer of the stomach, diseases of the gallbladder, cancer of the large and small intestine, intestinal regional enteritis, appendicitis and perforating ulcer; statistical records detailing symptoms, operative observations and postoperative results are presented; models demonstrating various lesions; lantern slides and motion pictures presenting operative technic.

WALTER G. MADDOCK and FREDERICK A. COLLIER, University Hospital, Ann Arbor, Mich.:

Water Balance in Surgery: Exhibit of charts and graphs showing the results of a study on the water requirements of surgical patients. The sources of available water and its excretion in health are dealt with; the water losses of patients under various aspects of disease and treatment are presented, the data being used to show the water needed under these conditions; the kind of fluid to administer when parenteral fluids are needed is brought out by data from the use of the common intravenous solutions; emphasis is placed on the need for thought as to both the amount and the kind of fluid to administer in each individual patient requiring parenteral fluids.

H. A. GAMBLE and JOHN A. BEALS, Greenville, Miss.:

The Open Wound Treatment of Peritonitis: Exhibit of transparencies and motion picture in color illustrating the method of treating diffuse peritonitis especially secondary to appendicitis; focus of infection is removed; Penrose drains are introduced; the peritoneum is sutured down to the drains; stay sutures of silver wire support the abdominal wound, which is left entirely open to the air without dressings until healed; the method prevents anaerobic infection of the abdominal wall, and the mortality rate has been reduced to 1.5 per cent.

BERNHARD STEINBERG, Toledo Hospital, Toledo, Ohio:

Developmental Mechanism of Peritonitis: Exhibit showing the tissue reaction together with the changing picture of the peritoneal exudate throughout the course of diffuse experimental peritonitis; the peritoneal exudate picture is correlated with the peripheral blood and the general condition of the animal; the cause of death is shown by experiments; the condition of the cardiovascular system is exemplified by electrocardiographic tracings and continuous blood pressure throughout the entire course of peritonitis is demonstrated; the principles of preventive and curative treatment are drawn from the anatomic and abnormal physiologic changes observed during the experiments; suggestive therapeutic measures, both preventive and curative, are shown.

W. L. ESTES JR. and H. A. ROTHROCK JR., Bethlehem, Pa.:

Partial Cholecystectomy: Exhibit of motion pictures showing the operation of partial cholecystectomy; charts of steps in operation; chart of indications and statistics.

J. ROSS VEAL, Louisiana State University Medical Center, New Orleans:

Arteriosclerosis and Arteriosclerotic Gangrene: Exhibit of colored drawings, supplemented by arteriographs showing arteriosclerosis in its various stages; the treatment of the various stages; the methods of determining the lowest limits of adequate circulation and the factors in the mortality rate.

CHARLES S. WHITE and J. LLOYD COLLINS, George Washington University School of Medicine, Washington, D. C.:

Empyema Thoracis: Exhibit of motion pictures, charts, graphs and roentgenograms showing a comparative study of methods of treatment of empyema thoracis.

WILLIAM BATES and BERNARD D. JUDOVICH, Philadelphia:

Parietal Pain: Exhibit of charts and motion pictures of clinical cases presenting the etiology, diagnosis and treatment of parietal pain; clinical tests to differentiate between acute appendicitis and acute parietal pain; the futility of multiple operations in cases of so-called postoperative adhesions; parietal pain, with special reference to backache and abdominal symptoms; the lumbodorsal spine and its frequently undiagnosed involvement in low back pain and lower quadrant abdominal pain.

THOMAS A. SHALLOW and K. E. FRY, Jefferson Hospital, Philadelphia:

Diverticula of the Pharynx: Exhibit of transparencies of roentgenograms of diverticula; charts enumerating the symptoms and diagnostic methods, drawings and charts showing the technic of the one stage combined operation; mounted specimens of diverticula removed at operation; motion pictures.

W. EMORY BURNETT, Philadelphia:

Lobectomy-Pneumonectomy Under Local Anesthesia: Exhibit of transparencies with the mounted specimen in a lighted compartment; charts on diagnosis, type of anesthesia, mortality statistics of large groups of recent cases of pneumonectomy and lobectomy.

HAROLD L. FOSS, Geisinger Memorial Hospital, Danville, Pa.:

Diagnosis of Diseases of the Thyroid Gland: Exhibit of transparencies of thyroid tissues, both gross and microscopic films illustrating the various types of thyroid disease, emphasizing the importance of differentiating adequately between the different types of goiter with associated toxemias.

Section on Obstetrics, Gynecology and Abdominal Surgery

JACOB HOFFMAN, Philadelphia:

Operation of a Gynecologic Endocrine Clinic for Diagnosis and Treatment of Menstrual Disorders and Sterility: Exhibit of (1) photomicrographs showing histologic changes in ovary and endometrium: (a) during the normal menstrual cycle; (b) associated with functional menstrual disturbances; (2) tests of sex hormone content of blood and urine for estimation of ovarian function: (a) apparatus used; (b) gross and microscopic reaction of test animals (photographs); (c) interpretation of observations; (3) photographs of endocrine and constitutional types commonly encountered in gynecologic endocrine

clinic; (4) charts showing: (a) methods of diagnosis and treatment; (b) results obtained; (c) evaluation of diagnostic methods and treatment.

RICHARD TORPIN, University of Georgia School of Medicine, Augusta, Ga.:

A Device for Simplifying Thoms Method of Roentgenographic Pelvimetry: Exhibit showing a device which will mark and fix in space the plane of the external conjugate; a leaden plate perforated every centimeter is mechanically held in this plane and the holes are photographed on the same film and with the same distortion as the superior strait; all the dimensions of the strait can thus be measured without calculation.

ROBERT GREENBLATT and EVERETT S. SANDERSON, University of Georgia Medical College, Augusta, Ga.:

Bacillary Antigen for Intracutaneous Test in the Diagnosis of Chancroid: Exhibit of charts showing the results of many tests; comparison with dmeclos preparation, including pictures of the skin tests; vials of antigen and mediums for culturing *Haemophilus ducreyi*; photograph of *H. ducreyi* as observed in cultures; photographs of lesions for differential diagnosis.

W. F. HAMILTON, R. A. WOODBURY and A. K. TEMPLES, University of Georgia School of Medicine, Augusta, Ga.:

Differential Pressures in Parturition: Exhibit showing a differential optical manometer, making it possible to record optically and quantitatively the separate contributions of the uterus and abdominal walls to the expulsive effort; in addition to the systemic blood pressure, the effective head of blood pressure supplying the placenta and the abdominal organs can be measured from separate simultaneous optical records.

PAUL TITUS, R. H. MCCLELLAN and B. R. ALMQUEST, St. Margaret Memorial Hospital, Pittsburgh:

Study and Treatment of Human Sterility: Exhibit covering study of causes of relative sterility in female and male shown by record forms and illustrations; commoner genital anomalies, types of cervicitis, technic of tubal insufflation and roentgen visualization of the uterus and tubes, endometrial biopsies for evidence of ovulation, and technic of sex hormone estimation; spermatic fluid studies, including motility studies and technic of total and differential counting of spermatozoa; technic of treatment of relative sterility and operative treatment; diagnosis and treatment of absolute sterility.

CHARLES MAZER, S. LEON ISRAEL and CHARLES W. CHARNY, Philadelphia:

Etiology and Treatment of Sterility: An analysis of 400 barren marriages. Exhibit of motion pictures showing a statistical study of cases of sterile marriage from the standpoint of etiology, treatment and results; the various procedures employed in determining the degree of fertility of both mates, such as examination of semen, intra-uterine insufflation, the Huhner test and premenstrual biopsy of the endometrium; photographs of patients, depicting various endocrinopathies responsible for the associated menstrual disorders.

WILLIAM BIERMAN and E. A. HOROWITZ, New York:

The Treatment of Gonorrhea in Women by Means of a Combined Heating Technic: Exhibit of charts and illustrations showing technic, its rationale, and results obtained; the treatment of gonorrhea in women by means of a combined heating technic; changes in the cervical and urethral secretions; exhibition of special vaginal electrodes; motion picture illustrating technic.

HENRY C. FALK, New York:

The Infected Abortion—A Clinicopathologic Study of Its Diagnosis and Management: Exhibit of drawings in color showing various types of postabortal infection; paths by which infection travels; lesions produced by the various types of infection; methods of recognizing the various types, showing typical temperature charts and a description of the management of various types.

MORTIMER A. HYAMS, New York:

Serial Uterosalphingography—The Roentgenographic Visualization of the Uterus and Fallopian Tubes by Fractional Injection, an Innocuous Procedure of Particular Diagnostic Value

in the Delineation of Obscure Gynecologic Conditions: Exhibit demonstrating the procedure; equipment, instruments used; the value and advantages of this method shown by comparative studies of uterosalphingograms taken preoperatively with studies of the uteri removed at operation; uterosalphingograms of conditions that could be diagnosed only by this method, illustrated with special films in illuminating boxes.

FRANKLIN F. SNYDER and MORRIS ROSENFELD, Johns Hopkins Hospital, Baltimore:

Intra-Uterine Respiration of the Fetus and Its Relation to Respiratory Failure at Birth: Exhibit of motion pictures supplemented by charts and photographs to illustrate (1) intra-uterine respiratory movements of the human fetus; (2) chemical regulation of fetal breathing and the changes occurring at birth; (3) failure of fetal respiration due to anesthesia and anoxemia; (4) breathing of amniotic fluids as a normal function of fetal respiration, its significance in dilatation of the air passages before birth and its relation to the pathology of the lung.

MOTION PICTURE PROGRAM

In an area adjoining the exhibits of the section, motion pictures on obstetrics, gynecology and abdominal surgery will be shown on a definite schedule throughout the week.

EVERETT I. EVANS—*Ovulation, Fertilization and Early Development of Mammalian Ovum.*

C. O. MCCORMICK—*Analgesia in Labor—Modified Gwathmey Technic.*

E. D. PLASS—*Gestational Polyneuritis.*

FRED L. ADAIR—*Treatment of Uterine Prolapse by the Le Fort Colpocleisis Procedure.*

WILLIAM J. DIECKMANN—*Blood Transfusion.*

Section on Ophthalmology

JOHN OLIVER McREYNOLDS, Dallas, Texas:

Illustrations of Various Eye Operations: Exhibit of motion pictures illustrating important eye operations and photographs showing specimens of the crystalline system and intra-ocular tumors; legends and personal demonstrations.

CONRAD BERENS, JACOB A. GOLDBERG and BRITTAIN F. PAYNE, National Society for the Prevention of Blindness and New York Tuberculosis and Health Association, New York.

Syphilis and the Eye: Exhibit consisting of (1) charts based on a study of 100,000 case records made by the Committee on Study of Syphilis and Eye Diseases, New York Tuberculosis and Health Association; (2) transparencies illustrating syphilitic eyes; (3) a mounted display; (4) slides on syphilitic eye conditions.

A. E. BRALEY, P. J. LEINFELDER and C. S. O'BRIEN, University Hospitals, Iowa City:

Orbital Tumors: Exhibit demonstrating the clinical diagnosis and the pathology of twenty-two different types of orbital tumors; transparent colored photographs illustrate the clinical appearance and the microscopic changes; charts show the relative frequency of occurrence and the differential diagnosis.

GEORGE GUIBOR and GEORGE E. PARK, Chicago:

A Classification of Concomitant Strabismus with Reference to Treatment: Exhibit of charts and photographs dealing with a classification of concomitant strabismus, the purpose of which is to differentiate those types of strabismus amenable to non-surgical training from those amenable to surgery; the characteristics of each type of squint, and the average number of cases recovering cosmetically from the appropriate treatment are shown.

ROBERT M. STECHER and BENJAMIN J. WOLPAW, City Hospital, Cleveland:

Artificial Fever Therapy of Ocular Diseases: Exhibit of photographs demonstrating the appearance of the eye in various ocular diseases and showing the changes that occur following fever therapy; the diseases illustrated include interstitial keratitis, gonorrheal ophthalmia, rheumatic iritis and hypopyon; essential facts of the clinical history, details of the treatment administered, and description of the changes seen are included in labels for each picture.

HARRY S. GRADLE, Department of Public Welfare and Illinois Society for the Prevention of Blindness, Chicago:

Trachoma: Exhibit of living conditions, individual cases and trachoma clinics in Illinois; an illuminated map of the southern fourteen counties of Illinois showing the bus runs to the clinics; statistical tables.

MARTIN COHEN, New York:

Fundus Lesions in Essential Hypertension and in Arterial and Renal Disease: Exhibit of colored fundus drawings of clinical cases accompanied with a brief history of each case, including colored drawings of microscopic sections of the kidneys of a few of these cases; the vascular lesions with their complications have been accurately drawn in each case.

GEORGE K. SMELSER, New York:

Experimental Production of Exophthalmos Similar to That Found in Exophthalmic Goiter: Exhibit consisting of (1) photographs of experimental animals demonstrating the degree and nature of the exophthalmos; (2) charts dealing with the changes induced in the orbital tissue of these cases; (3) photomicrographs of tissues removed from orbits in experimental and clinical cases of exophthalmos; (4) demonstration of pathologic condition found in the orbital tissues of clinical and experimental exophthalmos by means of microscopes and slides; (5) natural color photomicrographs of orbital tissues removed from both experimentally produced and clinical cases of exophthalmos.

HARVEY D. LAMB, St. Louis:

Pathology of the Human Eyeball: Exhibit of photomicrographs of particularly typical or unusual pathologic conditions of the human eyeball including corneal ulceration (one from aspergillus) and various sequelae: various forms of staphylococci, types of pannus, some developmental corneal changes, formation of precipitates on back of cornea, tuberculosis of choroid and optic papilla, sympathetic uveitis, unusual forms of melanosis of choroid, glioma of retina and glaucoma, with study of trephine wound at various intervals after operation.

A. B. REESE, Institute of Ophthalmology, New York:

Ocular Tumors and External Diseases: Exhibit A consists of colored drawings showing the clinical appearance for comparison with photomicrographs of the sections; exhibit B consists of colored drawings and photographs.

EDMUND B. SPAETH, Philadelphia:

The Surgical Correction of Ptosis: Exhibit of photographs and drawings, with a motion picture film illustrating the various conditions demanding correction.

MOTION PICTURE PROGRAM

In an area adjoining the exhibits, motion pictures on ophthalmology will be shown on a definite schedule throughout the week.

THEODORE J. DIMITRY—*Animated Diagrams Depicting Cataract Extraction.*

CONRAD BERENS—*Routine Examination and Treatment of Motor Anomalies Employed in the Department of Motor Anomalies of the New York Eye and Ear Infirmary.*

LOUIS LEHRFELD—*Allergic Agents in the Eye.*

RAMON CASTROVIEJO—*Dacryocystorhinostomy; Intracapsular Cataract Extraction; Keratoplasty, and Elliott's Trephine.*

Section on Laryngology, Otology and Rhinology

MAX CUTLER and L. M. ROSENTHAL, Michael Reese Hospital, Chicago:

Treatment of Intra-Oral Cancer: Exhibit of photographs, motion pictures, charts and models illustrating the following symposium on intra-oral cancer: (a) anatomic distribution, (b) course of disease, (c) histologic studies, (d) classification, (e) methods of treatment (technic of irradiation), (f) results.

HENRY B. ORTON, Newark, N. J.:

Cancer of the Larynx: Exhibit showing larynges that have been removed by operation; colored pictures of the larynx together with photomicrographs of the lesion and photographs of patients alive and well; the importance of cancer at the present time.

SAMUEL IGLAUER, Cincinnati:

Roentgenologic Studies of the Neck and Posterior Mediastinum: Exhibit of roentgenograms illustrating (1) normal anatomy of the neck in males and females at various ages; (2) the normal anatomic relationship of the superior and posterior mediastinum; (3) swellings due to infection of soft parts; i. e., retropharyngeal abscess, retro-esophageal mediastinitis, cellulitis, and so on; (4) tumors in the neck and mediastinum; (5) interstitial emphysema following perforation of the pharynx or esophagus; (6) methods of demonstrating the presence of opaque and nonopaque foreign bodies in the pharynx, larynx, trachea and esophagus; (7) the seating of appliances used in the treatment of laryngeal stenosis.

EDWARD C. ARMBRECHT, Wheeling, W. Va.:

Oral Surgery: Exhibit comprising photographs taken before and after operation of oral surgical conditions found in patients, such as (1) jaw fractures; (2) oral tumors; (3) cleft lip and cleft palate; (4) miscellaneous (comprising impacted teeth, unusual tooth deformities, oral manifestations of certain systemic diseases, foreign bodies found in the mouth, and so on).

M. H. LURIE, Boston:

Causes of Deafness in Animals: Exhibit of photomicrographs of animals' ears showing pathologic conditions found causing deafness; types of deafness found in these animals are (1) middle ear deafness; (2) nerve deafness; (3) inherited deafness; (4) deafness due to traumatic injuries to the ear.

RAPHAEL SCHILLINGER, Brooklyn:

Mastoids and Sinuses: Correlation of Clinical and Roentgen Studies: Exhibit of roentgenograms, clinical notes, charts, diagrams and bone specimens, demonstrating the value of roentgenologic procedures in the diagnosis and treatment of mastoiditis and sinusitis; the development of the mastoid process is traced roentgenographically from infancy, thus permitting an anatomic classification of mastoids based on development; film interpretation is correlated to the histopathologic changes; the use of the roentgen ray as a therapeutic and prophylactic agent is discussed; an "opaque survey" of the nasal sinuses is described, showing the importance of studying the sinuses functionally with the aid of radiopaque mediums and pointing out the inadequacy of the simple, so-called standard examination; clinical, pathologic and operative data are shown.

EVAN G. GALBRAITH, Toledo Hospital, Toledo, Ohio:

Experimental Bronchial Obstruction: Exhibit showing methods of producing complete and incomplete bronchial obstruction with and without injury to the bronchial mucosa; the anatomic changes in the lung followed at frequent intervals; both gross and microscopic changes of the various stages and to the various types of obstruction recorded; the effect on the pulmonary and bronchial circulation incident to the obstruction determined at frequent intervals; the return to normal, both from the anatomic and the physiologic point of view, after removal of the foreign body; methods of treatment decided from the experimental observations suggested.

WELLS P. EAGLETON, Newark, N. J.:

Intradural Complications from Petrous Apex Suppuration: Exhibit of mounted specimens of intracranial complications of the petrous apex suppuration; bones, brains and a series of roentgenograms showing the condition before death; history of each case.

L. H. CLERF and B. L. CRAWFORD, Jefferson Hospital, Philadelphia:

Benign Tumors of the Bronchus: Exhibit of prints of x-ray films, photomicrographs, charts and specimens of pathologic material directing attention to certain benign tumors that often are confused with carcinoma of the bronchus.

Section on Pediatrics

CHARLES C. CHAPPLE and JOSEPH STOKES JR., Children's Hospital, Philadelphia:

An Incubator for New-Born and Premature Infants: Exhibit showing an incubator with an air-tight heat-insulated chamber which utilizes outside air complete with temperature control,

humidity control and air-lock so that the infant need not be removed for any routine maneuver, as clysis, gavage, enema, weighing or feeding.

ADOLPH G. DESANTIS, FRANCIS D. MCCORMICK, LESLIE O. ASHTON, OLIVER L. STRINGFIELD and EDWARD DENNEEN, New York:

Appendicitis in Children: Exhibit of charts, anatomic drawings, anatomic models, photographs and series of case reports dealing with the question of diagnosis and management of appendicitis in infancy and childhood; diagnosis and pathology are stressed and various factors entering into the mortality rate are reviewed.

M. BERNARD BRAHDY and C. A. GAFFNEY, Willard Parker Hospital, New York:

Rapid Method for the Diagnosis of Diphtheria: Exhibit of (1) photomicrographs from stained smears from four hour (rapid method) cultures taken from diphtheritic membranes; (2) charts showing comparative results of rapid method and Loeffler method in diphtheria cases and controls; (3) photomicrographs of stained smears from rapid method transplants for obtaining pure culture for virulence tests in carriers; (4) charts showing higher percentage of identification of virulent carriers by the new method; (5) culture tubes for new rapid method; (6) demonstration of stained smears from rapid method cultures.

THEODORE O. ELTERICH, Pittsburgh:

Problems in the Endocrinology of Childhood: Exhibit of (1) female pseudohermaphroditism with adrenal hyperplasia and atypical precocious maturation in two siblings, roentgenograms, drawings, data on what was found at operation, histology of ovary, etc. (2) Varying types of precocious puberty, illustrated by (a) two cases of precocious menstruation; one child followed for a period six years, one child operated on, with report of observations; (b) a girl of 6 years undergoing precocious maturity of a masculine type; (c) precocious puberty in some forms of pseudohermaphroditism. (3) Cretinism. (4) Differential points in diagnosis between mongolism and juvenile myxedema (cretinism). (5) Hypogonadism. (6) Several types of pituitary dysfunction: (a) adipositas gigantismus, (b) dwarfism, (c) Hand-Schüller-Christian's disease with diabetes insipidus.

CLIFFORD SWEET, Oakland, Calif.:

The Teaching of Body Mechanics in Pediatric Practice: Exhibit of slides, photographs and motion pictures illustrating the fundamentals of body mechanics in relation to age and growth of children; simplified practical method of teaching body mechanics to parents and children is shown.

T. WINGATE TODD, Western Reserve University, and MILTON B. COHEN, Asthma and Hay Fever Clinic, Cleveland:

The Allergic Crippled Child: Exhibit of charts and manikins showing the effects of allergy in the physical and mental developmental growth pattern and of roentgenograms that demonstrate (1) tonsils, adenoids and turbinates, (2) growing and mutilated faces, (3) scorings, scars and demineralizations, and (4) maturation and its vagaries.

I. NEWTON KUGELMASS and S. C. MILLER, New York:

The Clinical Control of Dental Caries in Children: Exhibit presenting the method of determining the life caries index; type of caries in deciduous and permanent teeth; classification of dental caries in children; correlation of the degree of dental caries according to anatomic age, developmental trend, endocrine pattern, nutritional status, infectious invasion and mouth hygiene; the prevention of hereditary nutritional, metabolic, endocrine and infectious types of dental caries; the management of dental caries as a metabolic disorder in children.

GEORGE M. RETAN and KATHRYN S. RETAN, Syracuse University and Syracuse Memorial Hospital, Syracuse, N. Y.:

Perivascular Drainage for Infections of the Central Nervous System: Exhibit of charts relating to theoretical considerations, procedure and a summary of results in various diseases in which perivascular drainage for infections of the central nervous system is useful; model of set-up for treatment and a continuous motion picture.

MATTHEW WINTERS, CHARLES A. TOMPKINS and GRACE WASHBURN, Indianapolis:

The Use of a Pectin-Agar Preparation in the Treatment of Infant Diarrhea: Exhibit demonstrating therapeutic food, its composition, mode of preparation and forms of administration; tabulations of clinical results with comparison to other treatments will be shown; placards giving pertinent information on the present thought on fruit and allied diets in the treatment of diarrhea as based on a complete review of the literature on pectin, agar-milk diets and fruit diets.

Section on Pharmacology and Therapeutics

D. L. TABERN, HENRY C. SPRUTH and RICHARD KOHN, Abbott Laboratories, North Chicago, Ill.:

Studies on the Newer Barbiturates: Exhibit of charts, models and colored motion pictures illustrating certain interesting properties of the more recently developed barbiturates, such as rate of onset of action, duration of action, influence on blood pressure and respiration, use in connection with other forms of anesthesia and tranquilizing action, primarily from the standpoint of chemistry and pharmacology; other original studies on a group of substances having analeptic properties and their action during barbiturate hypnosis.

R. N. HARGER, H. R. HULPIEU and E. B. LAMB, Department of Biochemistry and Pharmacology, Indiana University School of Medicine, Indianapolis:

Prediction of Brain Alcohol from the Alcohol Content of Other Body Tissues and Fluids and Breath: Exhibit of charts and graphs covering recent original work showing the distribution of alcohol in brain, blood, liver, muscle, alimentary tract, spinal fluid and breath; time needed to reach alcohol storage equilibrium in various parts of the body; rôle of tissue water in the storage of alcohol.

THEODORE KOPFANYI and CHARLES R. LINEGAR, Georgetown University School of Medicine, Washington, D. C., and JAMES M. DILLE, University of Washington, Seattle:

Detection, Pharmacologic Action and Toxicology of Barbiturates: Exhibit of reagents and technic of procedure used in the detection and estimation of barbiturates in drug mixtures, urine, blood and organs; charts containing a diagrammatic description of these procedures; charts and drawings showing the fundamental pharmacologic actions of barbiturates; motion picture showing the depressant actions of barbiturates and the antagonism between barbituric acid derivatives and picrotoxin.

MARVIN R. THOMPSON, University of Maryland, Baltimore:

Ergot and Its Active Principles: Exhibit demonstrating the action of the various active principles of ergot on isolated surviving smooth muscle, using kymograph recording; charts illustrating the chemistry and pharmacology of ergot and its U. S. P. and N. F. preparations, with emphasis on pharmacologic and chemical standardization procedures.

ABRAHAM MYERSON, JULIUS LOMAN, MAX RINKEL, MAX RITVO and P. G. SCHUBE, Research Laboratory, Boston State Hospital, Boston:

Autonomic Pharmacology of the Human Being: Exhibit consisting of replicas of experiments on sweating, blood pressure, pulse rate, heart activity, gastro-intestinal secretion, gastro-intestinal motility, urinary bladder activity, eye and Argyll Robertson pupil, with charts, electrocardiograms, x-ray slides and other evidences of the results obtained, including samples of gastric juice.

PAUL STARR, Northwestern University Medical School, Chicago:

The Thyrotropic Hormone of the Anterior Pituitary Gland: Exhibit showing (1) chemical characteristics and methods of preparing solutions; (2) method of assay by graphic analysis of hyperplasia of thyroid of test animals; (3) physiologic effects in animals; (4) bio-assay in man of occurrence of thyrotropic hormone in blood and urine, and (5) effects of injection in man.

C. E. ERVIN and H. F. HUNT, Geisinger Memorial Hospital, Danville, Pa.:

Diagnosis and Treatment of Undulant Fever: Exhibit illustrating the incidence, methods of diagnosis, symptoms and treatment of undulant fever; temperature curves of a number

of typical and atypical cases that were treated by means of the intravenous injection of killed typhoid and paratyphoid bacilli; various laboratory procedures utilized in the diagnosis of this disease.

FRANK W. HARTMAN, Henry Ford Hospital, Detroit:

Oxygen Therapy with the Use of Liquid Oxygen and Air; a New Efficient Low-Cost Oxygen Tent: Exhibit showing an apparatus that uses only liquid gases (liquid air and liquid oxygen) to supply the oxygen and the cooling; the machine is small and goes over the head of the bed, and a transparent canopy of the new transparent rubber is used; no pressure tanks and no reducing valves or flow meters are necessary.

WALTMAN WALTERS, JOHN M. MCGOWAN, WINFIELD L. BUTSCH, NORMAN W. THIESSEN and PAUL A. KNEPPER, Mayo Clinic, Rochester, Minn.:

Pathologic Physiology of the Common Bile Duct and Its Relation to Biliary Disease; the Sphincter of Oddi, Its Relation to Biliary Colic; Biliary Obstruction: Exhibit of transparencies showing persisting obstructions of the common bile duct subsequent to surgical procedures, consisting of pancreatic obstructions of the common bile duct with and without reflux into the duct of Wirsung, and spasm or inflammation of the sphincter of Oddi; transparencies of kymographic tracings showing the variation in pressure within the common bile duct during biliary colic are shown; demonstrations of spasms of the sphincter of Oddi with increase in intraductal pressure and filling of the common and hepatic ducts, particularly the finer hepatic biliary radicles during the pain and at the height of the increase of the sphincter of Oddi are demonstrated to follow the use of amyl nitrite and glyceryl trinitrate, whereas morphine causes spasm of the sphincter and increase in the intraductal pressure; motion picture showing method of studying intraductal pressure; transparencies of the duodenum injected with barium and of the common bile duct injected with brominol to show the effect of morphine and amyl nitrite on the duodenum and the lower end of the common bile duct. A kymographic tracing to show increase in duodenal motility following administration of morphine.

Section on Pathology and Physiology

T. A. GONZALES and JACOB WERNE, Office of the Chief Medical Examiner, New York:

Lesions in Sudden Death: Exhibit comprising a statistical and illustrated review of the lesions encountered in persons dying suddenly of other than violent causes; specimens, photographs and drawings of the gross and microscopic lesions, and charts. The subject is considered according to the body system involved in the failure that led to the sudden death; particular attention is paid to coronary insufficiency without demonstrable recent occlusion and to the so-called status thymicolymphaticus.

JOSEPH F. HAMILTON, Dr. Willis C. Campbell Clinic, Memphis, Tenn.:

Pseudomycosis—Indolent Ulcer: Exhibit of photographs showing lesions before and after treatment.

J. GARRETT HICKEY and M. J. OPPENHEIMER, Temple University Medical School, Philadelphia:

Circulation Schema; Illustration of Normal and Pathologic Hemodynamics: Exhibit of motor-driven cam and adjustable lever with friction cones for speed changes (from forty to seventy-two per minute) rhythmically compressing a bulb (ventricle) connected with a bottle (atrium); valves, (mitral and aortic) with stopcocks and by-passes for stenoses and insufficiencies are interposed; small tubing (arterial system) leads to a glass wool filled U tube (capillaries) with a return system, (veins) to the bottle; proximal to the capillary area is a clamp, (arterioles); manometers (arterial and venous) are used for kymograph recording.

ISAAC SCHOUR, University of Illinois, Chicago:

Tooth-Ring Analysis: Exhibit of photomicrographs, charts and models which demonstrate the use of the incremental rings in the teeth for the analysis of biologic processes and events; (1) the neonatal ring in human deciduous teeth which records the biologic changes experienced by the new-born infant; (2) the ring pattern in the incisor of the rat with a revolving model comparing the action of this tooth of continuous growth

to the drum of a kymograph, which records the alterations in calcium metabolism accurately and promptly; (3) the ring pattern of the human incisor and its incremental mode of growth; (4) the 16 micron calcification rhythm in teeth; (5) the growth rhythm in teeth; (6) the experimental evidence which supports the concept that the growing tooth is a very delicate recorder of biologic processes.

OSCAR AUERBACH and SAMUEL LIPSTEIN, Sea View Hospital, Staten Island, N. Y.:

Pathology of Pulmonary Tuberculosis: Exhibit of mounted lung specimens, each accompanied by a photograph, short clinical history and anatomic diagnosis, showing (1) primary complex, (a) healed, (b) progressive; (2) generalization forms, (a) miliary, (b) large nodular; (3) chronic pulmonary tuberculosis, which will demonstrate all forms of early foci to extensive involvement; (4) collapse therapy, (a) pneumothorax; (b) thoracoplasty; (5) silicosis and tuberculosis.

RIGNEY D'AUNOY and EMMERICH VON HAAM, Department of Pathology, Louisiana State University Medical Center, New Orleans:

Granuloma Inguinale and Lymphogranuloma Inguinale, a Clinical and Pathologic Study: Exhibit dealing with a comparative study of the pathologic and clinical characteristics of both diseases in order to stress the important differential diagnostic factors.

LEONARD G. ROWNTREE, ARTHUR STEINBERG, N. H. EINHORN, J. H. CLARK, GEORGE M. DORRANCE and E. F. CICCONE, Philadelphia Institute for Medical Research, Laboratory of Philadelphia General Hospital and American Oncologic Hospital, Philadelphia, and A. M. HANSON, Faribault, Minn.:

Normal and Abnormal Growth: Exhibit dealing with normal and abnormal growth, showing (1) transparencies in color; (2) motion pictures; (3) lantern slides and microscopic demonstration; (4) thymus-treated rats; (5) pineal-treated rats; (6) tumor rats and other tumor animals; (7) extract of thymus, pineal and wheat germ; (8) preserved specimens; (9) frequent sacrifice of tumor animals to demonstrate malignancy.

EUGENE R. WHITMORE, Georgetown University Medical School, Washington, D. C.:

Whole Organ Sections, Gross and Microscopic: Exhibit of (a) slices of whole organs, stained to show the gross pathologic condition, mounted in museum jars, with brief clinicopathologic abstract accompanying each specimen; (b) whole organ micro sections of the same organs, stained in the usual way for micro study, mounted on lantern-slide-sized micro slides, for micro projection, as well as for study with the microscope; (c) photographs in colors of the same specimens and a microscope for study of the micro slides, both lantern slide size and regular 3 by 1 inch micro slide sections; (d) a micro projector, for projection within the booth of the lantern slide sections.

WILLIAM G. EXTON and ANTON R. ROSE, Prudential Insurance Company of America, Newark, N. J.:

Clinical Laboratory Methods: Exhibit dealing with simpler and shorter quantitative clinical pathologic methods with precision measurements which give useful information in clinical routine and research when other methods are impracticable; new sugar, fat, protein and red blood cell methods portrayed step by step and the end-materials measured in the electroscopometer by colorimetry or nephelometry with either standards or calibrations; demonstrations of different measurements, their indications, and universal application with one instrument. *Sugar Methods:* (1) qualitative and quantitative test for sugar in urine by di-sodium-di-nitro-salicylate; (2) reduction rate sugar method for indicating the nature of urinary reducing substances; (3) prevention of glycolysis in blood; (4) micro-modification of Folin-Wu blood sugar method. *Fat Methods:* (1) total lipins; (2) lecithin; (3) and (4) cholesterol, free and ester; (5) total fatty acids, and (6) neutral fat. *Protein Methods:* (1), (2) and (3) total protein in blood, urine and spinal fluid; (4), (5) and (6) albumin and globulin in blood, urine and spinal fluid; (7) fibrinogen and protein subfractions in plasma. *Red Blood Cell Methods:* (1) number or count; (2) size or volume; (3) hemoglobin content.

GEORGE J. KASTLIN, J. M. SHELTON and LESTER HOLLANDER, Pittsburgh Skin and Cancer Foundation, Pittsburgh:

A Study of Blood Cells: Exhibit of water color drawings showing the development of the blood cells from a single parent cell; water color drawings showing composite blood pictures of various diseases, including leukocytoses, leukemias and anemias; natural color transparencies of normal and abnormal blood cells; photographs taken from blood smears of patients.

M. J. SCHLESINGER, Beth Israel Hospital, Boston:

An Improved Method of Demonstrating the Coronary Artery Circulation with Evidence on the Functional Significance of Anastomoses: Exhibit of human hearts, in which the coronary arteries were injected with a radiopaque mass; each film shows all the arteries of a heart in one plane and are colored to emphasize the right and left coronaries and their anastomosis; charts and photographs illustrating the method.

HUGH JETER and WAYNE HULL, Oklahoma Hospital and University of Oklahoma Medical School, Oklahoma City:

Color Photography and Its Application in Medical Teaching: Exhibit of photographs in color representing clinical material, gross specimens, photomicrographs and reproduced color charts; colored lantern slides illustrating the practicability of using color photography in medical teaching.

VIRGIL H. MOON, DAVID R. MORGAN and MARSHALL M. LIEBER, Department of Pathology, Jefferson Medical College, Philadelphia:

Shock, Its Pathology and Sequelae: Exhibit of gross and microscopic material from human cases and from animals showing the pathologic features characteristic of shock; the sequelae of sublethal degrees of shock are similarly presented; charts indicating the etiology and mechanism of these and photomicrographs are presented.

LESTER R. DRAGSTEDT and JOHN VAN PROHASKA, Department of Surgery, University of Chicago Clinics, Chicago:

Lipocain, a New Pancreas Hormone: Exhibit showing that depancreatized animals adequately treated by diet and insulin regularly die within two to three months; extreme fatty infiltration of the liver is found in such animals but this fatty change may be corrected and life prolonged by the oral administration of a new hormone of pancreatic origin.

WILLIAM E. EHRLICH, GEORGE M. BARTOL and RICHARD E. WOLF, Department of Pathology, University of Pennsylvania School of Medicine:

Experimental Glomerular Nephritis in Rabbits: Exhibit of (1) table showing the method employed; (2) table showing the results obtained by this method; (3) microscopes showing the renal lesions produced (typical glomerular nephritis); (4) charts showing the clinical changes, as proteinuria, blood urea retention and renal anemia; (5) charts showing the results of new dye tests in these animals (with cyanol and azofuchsin); (6) apparatus and dyes used for the tests.

SAMUEL M. FEINBERG and THEODORE BERNSTEIN, Northwestern University Medical School, Chicago:

Mold Spores in Air; Causes of Asthma and Hay Fever: Exhibit of culture plates and tubes showing the fungi important in these cases; photomicrographs and drawings of some of the fungi; charts and curves showing incidence of mold spores, their "seasons"; charts showing results of tests and treatment and enlarged drawings of fields under the microscope, depicting areas on exposed slides and their content of pollens, fungus spores and other organic and inorganic matter; specimens indicating the sources of these fungi (such as grains, vegetables); the object of the exhibit is to demonstrate the finding of widespread contamination of the general atmosphere by mold spores capable of causing allergic symptoms and to illustrate that very many instances of asthma and hay fever occur as a result of allergy to this group of substances.

MAURICE ROSENTHAL and EDWIN J. GRACE, Long Island College of Medicine, Brooklyn:

Experimental Radium Poisoning: Exhibit of transparencies and photomicrographs showing the changes in lymph nodes, bone marrow and teeth of rabbits; charts describing the pathologic changes in teeth; general features of radium poison-

ing; bone marrow changes; peripheral blood changes and lymph node changes; the photographic method of detecting radium in tissues (bones); differentiation of true radium poisoning from damage due to irradiation during therapeutic use and other conditions.

Section on Nervous and Mental Diseases

JAMES W. WATTS, WALTER FREEMAN and RALPH W. BARRIS, Washington, D. C.:

Psychosurgery, the Effect on Behavior of Surgical Interruption of Pathways in the Frontal Lobe: Exhibit of diagrams, photographs and tables dealing with the indications for operation, the manner in which cases are selected, the operative technic and the results of operation. Roentgenograms of the skull showing the operative site visualized by the injection of thorium dioxide sol; observation on frontal lobe functions before and after operation. When a patient has been able to return to work, he has been observed for signs of deficits produced by the operation; when a patient has been unable to return to work, studies have been made to determine the cause; summaries of twenty-odd cases are presented. Clinical material is supported by behavior changes which follow prefrontal lobotomy in the monkey. No alteration observed after unilateral operation; following bilateral lobotomy, animals immediately lose former reactions of aggressiveness and of fear. Monkeys having the unilateral and bilateral operation are on exhibit, illustrating the striking alteration in behavior.

LEWIS J. FRIEDMAN, JOSEPH T. TRAVERS, WILLIAM ROBINSON and A. TOLK, Bellevue Hospital, New York:

Encephalographic Studies of Posttraumatic Sequelae Following Head Injuries: Exhibit dealing with sixteen cases, including short history of each case; operative observations, results and encephalographic study; some cases have both lateral and anterior posterior projections; some cases of subdural hematoma show the midline shift and compression; other cases show varying degrees of brain atrophy; many cases contain inadequate histories of trauma and in neurologic examination are found negative; one case showing air in the subdural space for differential diagnosis from brain atrophy.

TRACY J. PUTNAM, Boston City Hospital, Boston:

The Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus: Exhibit of oil paintings to illustrate the circulation of the spinal fluid and to show the method of operation with the ventriculoscope; photographs of patients before and after operation; photographs and colored transparencies of the abnormalities involved in hydrocephalus and of the scars resulting from operation; charts of the mental development of patients operated on and followed for periods up to three years; a sample of the ventriculoscope and a "mannequin" hydrocephalic brain in which its use may be practiced.

TEMPLE FAY, FRANK KONZELMANN and MICHAEL SCOTT, Temple University, Philadelphia:

Unusual Tumors of the Brain and Spinal Cord: Exhibit presenting interesting and unusual tumors of the brain and spinal cord; pathologic specimens represent some important problems in differential diagnosis of lesions of the central nervous system; encephalographic and roentgen studies as aids to diagnosis in these particular lesions are presented along with protocol of the cases; the value of the spinogram in diagnosis and localization is illustrated; the results of tentorial decompression in a series of medulloblastomas is portrayed; the exhibit contains pathologic specimen x-ray transparencies, graphs and charts.

E. A. SPIEGEL and MONA SPIEGEL-ADOLF, Temple University School of Medicine, Philadelphia; J. B. PRICE, Norristown, Pa., and N. P. SCALA, Washington, D. C.:

Physiopathology of the Sixth Sense: Exhibit illustrating the reflex activity of the labyrinth, particularly the reflexes on the eyes and the vegetative nervous system (pathogenesis of seasickness), the relation of labyrinthine impulses to the cerebral cortex (electro-encephalogram in labyrinth stimulation, vertigo in brain tumors, cortical reactions of labyrinthine origin) and methods of examination of the sense of position and of reactions during rotation.

EDWARD C. ROSENOW, Mayo Foundation, Rochester, Minn.:

The Relation of Streptococci to the Viruses of Encephalitis and Poliomyelitis: Exhibit of charts showing (1) diplococci, stained by a new method, in filtrates of the viruses; (2) lesions produced by injection of viruses derived from streptococci; (3) streptococci in the spinal fluid and in lesions of human beings having poliomyelitis and encephalitis, and in monkeys following inoculation of natural and experimentally made virus; motion pictures showing symptoms and lesions in monkeys inoculated with viruses derived from streptococci.

EBEN J. CAREY, Milwaukee:

Wave Mechanics of the Nervous Impulse: Exhibit of photomicrographs of experiments on the nervous and muscular systems; apparatus revealing pressure waves in glass rods with the aid of polarized light, which are like those in the nervous system. The nervous system of different animals was subjected to strong strychnine stimulation or depressed by prolonged anesthesia with urethane and ether. Histologic evidence of the augmentation of amplitude and increase of frequency of pressure pulses are observed when the nervous system is subjected to the prolonged action of depressant agents. In other animals the medulla oblongata was traumatized by a sudden blow. Experimental evidence demonstrates that the axons of nerve fibers are in the physical state of a colloidal liquid. By a sudden blow on the medulla the fluid pressure is transmitted through the axons of the tracts of the spinal cord. These balloon out or cause a "blow-out" at a distance from the initial site of sudden high pressure to cause acute traumatic syringomyelia.

MOTION PICTURE PROGRAM

In an area adjoining the exhibits of the section, motion pictures on nervous and mental diseases will be shown on a definite schedule throughout the week.

J. RUDOLPH JAEGER—*Neurosurgery Procedures.*

Section on Dermatology and Syphilology

NELSON PAUL ANDERSON, SAMUEL AYRES JR. and PAUL D. FOSTER, Los Angeles:

Atypical Manifestations of Scabies: Exhibit of illustrations, charts and photographs depicting various atypical manifestations of scabies, such as severe generalized pyoderms, urticaria, persistent postscabetic nodules, involvement of the face (infants), pseudochancres from penile lesions; microscopic slides showing the adult organism, ova and feces situated in a burrow, and a chart outlining a simple but effective therapy.

REUBEN FRIEDMAN, Philadelphia:

The Story of Scabies: Exhibit of photographs and photomicrographs depicting the burrow of *Acarus scabiei*, with explanatory poem.

RHODA W. BENHAM and EDWARD D. DELAMATER, New York:

The Pathogenic Fungi: Exhibit showing charts, pictures and specimens of recognized genera of the pathogenic fungi, pictures of clinical lesions caused by each genus, cultures and microscopic slides illustrating each genus; charts showing different species and variants of the dermatophytes and their relationship to the saprophytic gymno-ascaceae.

GEORGE M. LEWIS, MARY E. HOPPER and ROYAL M. MONTGOMERY, New York:

The Skin Manifestations of Trichophyton Purpureum: Exhibit consisting of charts, diagrams and photographs showing the microscopic, cultural and culture mount appearance of *Trichophyton purpureum*; the diverse skin manifestations found in patients; lesions on the interdigital webs, the soles and sides of the feet; the palms and fingers; the inner thighs, nails and occasionally on the smooth skin; a case of follicular involvement.

S. WILLIAM BECKER and HAROLD W. THATCHER, University of Chicago, Department of Medicine, Chicago:

Studies on Multiple Idiopathic Hemorrhagic Sarcoma of Kaposi: Exhibit of charts, photographs and photomicrographs,

giving historical review, nomenclature and theories relative to the nature of Kaposi's sarcoma; presentation of pathologic studies, including injection of colloidal material, inoculation and tissue culture.

FRANCIS P. MCCARTHY, JAMES C. HEALY and FRANCIS H. DALEY, Boston:

A Clinical and Pathologic Demonstration of Oral Lesions: Exhibit of lantern slides and charts showing oral lesions; special study of leukoplakia buccalis; bismuth pigmentation and stomatitis; clinical and pathologic studies; demonstration of common and rare oral lesions; manifestations of allergy in oral cavity, clinical and pathologic studies; manifestations of endocrine dysfunction in oral cavity.

M. E. OBERMAYER, Chicago:

Ammonium Succinimido-Aurate, a Gold Compound of Low Toxicity: Exhibit showing samples of various gold compounds in use in dermatology and charts depicting their chemistry; the chemistry of ammonium succinimido-aurate and tables illustrating the relative toxicity of the drugs.

THEODORE CORNBLEET, Chicago:

Excretion Activities of the Skin: Exhibit demonstrating two general methods by which the skin excretes metabolites: first, as a solution or emulsion in sweat and sebum, as for example, ketone body excretion; second (less known but equally important) as deposits occurring into the basal layer of the epithelium and reaching the surface in the ordinary evolution of the cells toward the keratin layer; these deposits are cast off with the topmost keratinized cells which house them; iodides and arsenic are excreted in this manner. There may be variations in this method of excretion, as, for instance, some persons show a delay between the ingestion of arsenic and its scaling off, this delay being instrumental in producing such changes as keratosis.

A. BENSON CANNON, New York:

Arsphenamine Therapy of Syphilis in General Practice: Exhibit setting forth a systematic and rational procedure for the treatment of syphilis in all stages; demonstration of the administration of arsphenamine by a safe and practical method available to the general practitioner; graphic presentation of a complete plan of treatment, accompanied by figures and illustrations summarizing the experience on which the plan is based.

A. J. CASSELMAN, State Department of Health, Trenton, N. J., and E. W. FLOSDORF, University of Pennsylvania, Philadelphia:

The Diagnosis of Syphilis, Darkfield Equipment, Wassermann and Flocculation Standardization, Special Model of Lyophile Apparatus: Exhibit of a darkfield outfit which shows the advantage of semipermanent adjustments of light source, mirror, microscope and centering of darkfield condenser; adjustments should be unnecessary except annually. The only efficient Wassermann or flocculation control is a weakly positive serum; liquid serum is too unstable to be used as a permanent standard; a standard serum of a single given potency, preserved in lyophilic form, can be kept under refrigeration for six months or longer without detectable change, is suitable for mailing and will permit every laboratory to determine the exact sensitivity of its methods; a generally agreed on standard strength of serum would permit the adoption of the same degree of sensitivity of every laboratory; descriptive and explanatory charts.

CHARLES R. REIN, FRED WISE and ALFRED CUKERBAUM, New York:

The Use of the Kline Finger Blood Tests in the Detection of Syphilis in Blood Donors Immediately Prior to Transfusion: Exhibit demonstrating a simple method for the detection of syphilis in all donors (professional and nonprofessional) immediately prior to transfusion; the procedure requires only a few minutes and can be done simultaneously with the blood typing and direct cross agglutination, without loss of time.

BENJAMIN S. KLINE, Mount Sinai Hospital, Cleveland:

Evaluation of Results of Flocculation Tests for Syphilis in the Recent American Conference; Outline of Studies for Standardization of These Tests: Exhibit of charts showing

results of the recent American Serological Conference with tests of blood and of spinal fluid arranged (1) in order of specificity and (2) in order of sensitivity; charts giving outline of studies to standardize flocculation tests for syphilis (1) list of studies, (2) antigen free of adventitious substances, (3) preparation of optimal antigen emulsions, (4) determination of optimal test conditions.

Section on Preventive and Industrial Medicine and Public Health

CHARLES GOODMAN, New York:

Etiology of Thrombo-Angiitis Obliterans: A Diagnostic Skin Test for Thrombo-Angiitis Obliterans and Typhus Fever: Exhibit of statistical charts, photographs, lantern slides and microscopic slides demonstrating a new conception of the etiology of thrombo-angiitis obliterans and the development of a diagnostic skin test for thrombo-angiitis obliterans and typhus fever; results observed in a study of more than 600 tests showing the relationship between the two, proving that the skin tests will prove positive in the active stage as well as in convalescent and recovered typhus, even after a period of fourteen or fifteen years; results obtained after using several different strains of *Rickettsia prowazeki* from various sources; similar tests have proved negative in a large number of controls, including presumably normals, arteriosclerosis with and without gangrene, diabetes with and without gangrene, typhoid, tuberculosis, pneumonia and other acute infectious diseases.

W. AMBROSE MCGEE, Richmond, Va.:

The Relative Value of Schilling Differential Counts, Sedimentation Rates and Lymphocyte-Monocyte Ratios in Tuberculosis of Childhood: Exhibit of charts showing laboratory observations in various stages of childhood tuberculosis, a comparison of those procedures and their relative value from a diagnostic and prognostic point of view.

LLOYD ARNOLD and IRWIN G. SPIESMAN, University of Illinois College of Medicine, Chicago:

Susceptibility to Common Colds: Exhibit of charts and graphs showing results of temperature studies of nasal mucosa under various environmental conditions; the influence of hydrotherapy, diet and mental hygiene in prevention of colds is illustrated in various ways.

FRED J. HODGES, JOHN C. BUGHER and H. M. POLLARD, University of Michigan Hospital, Ann Arbor, Mich.:

The Use of Machine Methods in the Indexing of Medical Information; Statistical Information; Cancer Case Records: Exhibit of mechanical tabulating machines consisting of a card punch, a verifier, a reproducing punch, a card sorter and a tabulating and listing machine; the actual procedure of recording roentgenologic observations on punch cards will be demonstrated by attendants showing every step from the examination of films to the filing of completed punch cards; the approach to previously recorded information of this sort will also be shown as well as the facility with which such information can be analyzed and prepared for statistical treatment; a new and unique plan of using these facilities for accumulating accurate and pertinent information on all cancer cases will also be shown.

S. E. GOULD and I. F. HUDDLESON, Eloise and East Lansing, Mich.:

Undulant Fever (Brucellosis): Exhibit illustrating etiology, methods of diagnosis and treatment by means of models, transparencies, charts; motion picture portraying the geographic distribution, clinical manifestations, diagnosis and treatment of the disease; the rôle of domestic animals that are usually unrecognized as sources of infection; the methods of performing the skin test, the rapid slide test and the opsonic test; the method and results of the use of brucellin, a filtrate of brucella.

J. W. SCHERESCHESKY, United States Public Health Service and Harvard Medical School, Boston:

Carcinogenic Compounds and Lung Tumors in Mice: Exhibit of charts showing the structural formulas of various pure carcinogenic compounds; samples of the compounds, specimens in Kaiserling's solution showing tumors induced; photomicrographs of typical tumors; lung tumors in mice; pathologic

specimens of mice in Kaiserling's solution showing induction of lung tumors by carcinogenic compounds implanted subcutaneously; charts showing hereditary transmission of susceptibility to lung tumors in mice as a dominant factor; photomicrographs of lung tumors.

HENRY H. KESSLER, Newark, N. J.:

Cineplastic Amputation: Exhibit of photographs, plaster models, sample of prosthesis and motion pictures demonstrating the utility of the cineplastic prosthesis for those who have lost an arm in industrial and public accidents.

F. HOWARD WESTCOTT, FRED W. GRAEF, HAROLD E. CLARK, JAMES J. SHORT and ABBOTT W. ALLEN, New York:

Medical Survey: Exhibit showing a study of hospital records concerning illnesses and accidents that have occurred among 3,000 employees: the group that received preemployment examination compared to the group that was employed before a medical department was established to which no preemployment examination was given; the cause of lost time for each system is graphically arranged.

RAPHAEL POMERANZ, Newark, N. J.:

Silicosis in Pulverizing Plants: Exhibit of transparencies of dust, serial roentgenograms, gross specimens and photomicrographs demonstrating anthracosis and silicosis, silicosis and tuberculosis, experimental work with the same type of silica dust, differential diagnosis, cancer and silicosis and some methods of prevention.

A. J. LANZA, W. J. MCCONNELL and J. W. FEHNEL, Metropolitan Life Insurance Company, New York:

Industrial Hygiene Survey: Its Scope and Method: Exhibits of charts and photographs presenting a graphic description of mechanics and process of determining health hazards in industry.

HENRY C. SWEANY, Municipal Tuberculosis Sanitarium, Chicago:

The Chemistry and Pathology of Pneumoconiosis: Exhibit of specimens, roentgenograms, charts and photomicrographs of human specimens representing the principal varieties of pneumoconiosis; demonstrations on the chemical methods used with the various steps in chemical analysis; demonstration of polarizing microscope and its limitations.

W. F. WELLS and MILDRED WEEKS WELLS, Harvard School of Public Health, Boston:

Air-Borne Infection: Exhibit showing the methods of bacterial analysis of air by which air-borne infection has been demonstrated, and the application of ultraviolet rays to the sanitary control of air-borne infection, with special reference to hospital practice.

DERYL HART, Duke Hospital, Durham, N. C.:

Sterilization of the Air in the Operating Room with Bactericidal Radiant Energy: Exhibit of charts of cultures of the air, of all supplies, and of noses and throats showing that air is the greatest source of wound contamination; photographs showing the extensive destruction of all types of bacteria at distances of from 5 to 10 feet from the source of radiation within one to thirty minutes of exposure; photographs and charts showing the presence of bacteria in the air of hospitals in at least sixteen states, some being air conditioned and others not; charts showing the great reduction in number of infected wounds and reduction in postoperative temperature and duration; photographs showing effects of ultraviolet radiation on wound healing in experimental work of animals; charts showing the physical characteristics of radiation and its intensity and bactericidal efficiency at various points in the operating room.

F. H. FALLS, R. R. FERGUSON, MAURICE L. BLATT, Chicago, FRANK J. JIRKA and GRACE S. WIGHTMAN, Springfield, Ill.:

Illinois State Program for Educational Courses in Maternal and Infant Welfare: Exhibit of charts showing co-relation of various organizations cooperating in the development of this plan of education; poster drawings showing home delivery set-up for normal labor and for operative delivery; outlines of typical lectures on two obstetrical and one pediatric subject,

illustrated by original drawings from which teaching lantern slides are made, covering the subjects of puerperal sepsis, obstetrical hemorrhages and contagious diseases; statistical charts on maternal and infant mortality, comparing mortality in state and counties with that of the United States, and showing the chief causes of maternal death; educational program comprising refresher courses in pediatrics and obstetrics; manikin demonstration course; dry clinics and consultations in local hospitals; small courses, one week intensive work; development of county committees on maternal welfare.

Section on Urology

ROGER W. BARNES, Los Angeles:

The Teaching of Urology to Undergraduates: Exhibit of models of normal and pathologic conditions of the prostate as palpated by rectum; with these will be grouped coexisting condition such as specimens of tuberculous kidney or pyelograms, with the tuberculous prostate; roentgenograms and specimens of prostatic calculi; specimens of upper urinary tract dilatation due to back pressure from prostatic hypertrophy; roentgenograms of metastasis from carcinoma of prostate.

JAMES J. JOELSON and EUGENE FREEDMAN, University Hospitals, Cleveland:

Urologic Roentgenology: Exhibit of pyelograms and other films of the urinary tract demonstrating the changes which occur in the various urologic diseases.

H. DABNEY KERR and CARL L. GILLIES, University Hospital, Iowa City:

Roentgen Diagnosis of Lesions of the Lower Urinary Tract: Exhibit showing the value of opaque and air cystograms in the diagnosis of vesical lesions and of cysto-urethrograms in prostatic and urethral lesions; demonstration of bladder tumors, nonopaque stones, diverticula, benign and malignant prostatic lesions, urethral stricture, and so on.

WILLIAM J. EZICKSON and JACOB B. FELDMAN, Philadelphia:

Vitamin A Deficiency in Individuals with Urinary Lithiasis: Exhibit of charted graphs of the dark adaptation examinations of each individual reported in the study, showing condition before treatment and after treatment; prints made from roentgenograms depicting the clinical story of each case relative to urinary calculi, also several charts giving the analysis of the study of vitamin A deficiency of this group of cases.

ALEXANDER RANDALL, Department of Urology, University of Pennsylvania and Abington Memorial Hospital, Philadelphia:

Origin and Growth of Renal Calculi: Exhibit of primary renal calculi in postmortem studies on human kidneys demonstrating their origin from lesions of the renal papilla.

NELSE F. OCKERBLAD and H. E. CARLSON, Kansas City, Mo.:

The Distribution of Ureteral Pain: Exhibit dealing with studies of the distribution of ureteral pain in man by applying a small electrical stimulus to the ureter by means of a specially constructed catheter electrode; the patient regularly designated definite areas to which the pain was referred, and the distribution of pain of the entire ureter was mapped out in this manner.

W. CALHOUN STIRLING and A. M. LANDS, Washington, D. C.:

An Experimental and Clinical Study of Traumatic Kidney Injuries: Exhibit of plates, photomicrographs and drawings representing an experimental study of a series of experiments on animals with careful controls used in each group of experiments. New facts are listed in the relation between anemia and kidney trauma; a marked depression of the hematopoietic system is shown as a result of some toxemia liberated by the injured kidney; the technic of kidney repair is illustrated.

R. H. FLOCKS, Department of Urology, State University of Iowa, College of Medicine, Iowa City:

The Arterial Distribution Within the Prostate Gland—Its Role in Prostatic Resection: Exhibit of (1) photographs and diagrams of bladder necks and prostate glands in which the arteries have been injected to illustrate their distribution in the normal adult prostate, the infant prostate, and the enlarged prostate both before and after resection; (2) specimens illustrating typical configurations in which the arteries have been injected with barium and then cleared by the Speltcholtz

technic so that the vessels can be clearly seen; (3) stereoscopic photographs of these specimens illustrating the arterial distribution within the prostate at various ages and the significance of this distribution in relation to surgery on the prostate gland.

Section on Orthopedic Surgery

DAVID M. BOSWORTH, A. SUMNER PRICE and B. M. BOSWORTH, New York:

Lesions and Surgery of the Menisci of the Knee: Exhibit of actual specimens, transparencies of photographs, roentgenograms and drawings, photographic enlargements of specimens and photomicrographs in addition to a motion picture in color of operative procedure and lesions found.

GEORGE E. BENNETT, Children's Hospital School, Baltimore:

Orthopedic Appliances and Demonstration of Examination, Protection and Treatment in the After-Care of Anterior Poliomyelitis Cases: Exhibit of orthopedic appliances and motion picture demonstration of examination, protection and treatment in the after-care of anterior poliomyelitis cases; (1) emphasizing the principles and neutral rest position for protection of all muscles in poliomyelitis cases; (2) examination of leg muscles; (3) examination of arm and abdominal muscles; (4) detailed protection for isolated muscle groups; (5) treatment, types and principles involved; casts, braces, splints, frames, muscle charts and improved passive vascular exercise boot and cuffs.

CHARLES S. VENABLE, WALTER G. STUCK and ASA BEACH, San Antonio, Texas:

Electrolysis the Determining Factor in Osteosynthesis with Metals: Exhibit showing experiments in which different metals and alloys were used in various combinations, followed by macroscopic, microscopic, x-ray and biochemical examinations; biochemical examination showing the transference of ions of one metal to the other, according to the laws of electromotive force of metals, showing that electrolysis is the controlling factor and that a metal entirely resistant to body fluids, acting as the electrolyte, must be used for consistent success in metallic-osteosynthesis.

JAMES A. DICKSON, Cleveland Clinic, Cleveland:

Torticollis: Experimental and Clinical Studies: Exhibit of photomicrographs showing the similarity of the pathologic changes in (1) torticollis, (2) ischemic paralysis, and (3) changes produced experimentally by obstructing the venous supply while the arterial supply is left intact; photographs showing the patients before and after operation; overcorrection maintained by sandbag immobilization only.

SIGMUND ERSTEIN, New York:

The Crutch in Art Through Forty Centuries: Exhibit of prints of the masterpieces of art dating from 2830 B. C. to the present, tracing the use of the staff, the crutch and other appliances, by the handicapped of forgotten ages.

BADLEY L. COLEY and NORMAN L. HIGINBOTHAM, New York:

Primary Tumors of Bone: Three horizontal rows of framed transparencies, each row to occupy approximately a 25-foot length; grouped to illustrate the history, clinical, roentgenographic, pathologic and therapeutic aspects of the different types of bone tumors as observed at the Memorial Hospital and the Hospital for Ruptured and Crippled, New York.

FRED H. ALBEE and ROBERT L. PRESTON, New York:

The Mechanism of Joint Control by Muscular Action: Exhibit of drawings, diagrams and skeletal models demonstrating how active control of certain joints can be brought about by the surrounding muscles even though they have been weakened by trauma or disease and how to restore the mechanical bone lever when bony contours have been changed, the restoration of active muscle control to the hip when this control is entirely absent as in ununited fracture, infantile paralysis, loss of the lever at the top of the femur from old tuberculosis or following arthroplastic operation to produce motion, the stabilizing effect on a surgically made elbow joint of elongating the olecranon process as a lever.

L. D. SMITH, Milwaukee, Wis.:

Reduction and Fixation of Shaft Fractures by Skewers: Exhibit of an apparatus with skewers fixed in a fractured femur, showing the method of manipulation of the fragments by skewers, and films of shaft fractures illustrating their reduction and fixation.

J. DEWEY BISGARD, Omaha:

Giant Cell Tumor and Cartilaginous Exostoses Experimentally Produced in Animals: Exhibit showing a series of immature rabbits from each of which a segment of the radius was removed; in most of these, partial or complete separation of the distal ulnar epiphyses developed unexpectedly, and these reduced completely or nearly completely spontaneously; in some there developed at the point of separation on the diaphyses lesions that were grossly and microscopically typical cartilaginous exostoses; in two animals there developed also tumors that grossly and microscopically were giant cell tumors. The development of these tumors is shown in roentgenograms and photomicrographs.

EARL D. MCBRIDE and ELIAS MARGO, Oklahoma City:

Scoliosis: A New Derotation Apparatus for Treatment of Ambulatory Cases and New X-Ray Method of Recording: Exhibit showing a new manner of recording the skeletal deformity with an apparatus for the correction of scoliosis.

M. S. HENDERSON, H. W. MEYERDING, R. K. GHORMLEY and H. B. MACEY, Mayo Clinic, Rochester, Minn.:

Fractures, a Potential Source of Deformity and Disability: Exhibit showing: I. Methods of internal fixation for fractures of the neck of the femur with: (a) Smith-Petersen cannulated nail, (b) cannulated metal lag screw inserted over guide wire. II. Mechanical principles of reduction and fixation; roentgenograms taken before, during and at the completion of the operation show the technic and end results. III. Technic of fibular bone graft for ununited fractures of the neck of the femur is shown by skeletal models, roentgenograms and models of the operative procedures. IV. Skeletal models and postoperative roentgenograms show three types of reconstruction operation for the ununited fracture of the neck of the femur: (a) Brackett operation, (b) Whitman operation, (c) Colonna operation. V. Massive bone graft for ununited fracture of the shaft of the femur and ununited fractures of the shaft of the humerus. VI. Reversible bone grafts for fracture of the shaft of the tibia are shown by similar means. VII. Malunited fractures near the joints. VIII. Pathologic fractures of various types illustrated by roentgenograms. IX. Volkmann's ischemic contracture of forearm and hand. This is a common complication of supracondylar fracture of the humerus. Diagrammatic model shows displacement of fragments with deep hemorrhage, causing intrinsic pressure and blocking circulation. The early conservative treatment and late surgical treatment.

MOTION PICTURE PROGRAM

In an area adjoining the exhibits of the section, motion pictures on orthopedic surgery will be shown on a definite schedule throughout the week.

PAUL COLONNA—*Reconstruction Operation of Fracture of the Hip.*

PAUL D. HARMON and EDWARD L. COMPERE—*Reconstructive Surgery in Poliomyelitis.*

H. THEODORE SIMON—*Fractures of the Upper Extremity.*

WILLIS C. CAMPBELL—*Animated Cartoon Showing Repair of the Lateral and Anterior Crucial Ligaments of the Knee.*

Section on Gastro-Enterology and Proctology

MALCOLM R. HILL and CYRIL B. COURVILLE, Los Angeles:

Fecal Dysfunction Following Abdominoperineal Resection of the Rectum: Exhibit displaying (1) cystograms of case records; (2) artists' drawings of anatomic relationship, with special consideration as to nerve supply of the parts and probable site of injury resulting from operative procedure; (3) chart of case compilation; (4) lantern slides in color illustrating stages of operation.

GEORGE E. BINKLEY, New York:

Tumors of the Rectum and Colon: Exhibit of transparencies (1) gross tumors and microscopic sections of various types of tumors; (2) metastatic lesions to various parts of the body; (3) radiation therapy employing (a) external applications of roentgen and radium rays, (b) interstitial applications of gold filtered radon seeds, and (c) special surface rectal applicators; (4) snare removal and fulguration of rectal polyps; (5) surgery, illustrating different forms of technic for radical removal of colon and rectal cancer; (6) a small number of gross specimens and wax models.

MORRIS A. HERSHENSON, Pittsburgh:

Roentgen Exploration of the Gastro-Intestinal Mucosal Topography: Exhibit of roentgenographic transparencies illustrating the increase in diagnostic information obtained from a study of the mucosal topography of the gastro-intestinal tract; the normal and some of the more common abnormal conditions of the digestive tract are shown; the roentgenographic signs of lesions in the mucosa are compared by pictures made with and without compression; an original compression device is used and its application illustrated by photographs and by film-slide projection.

BENJAMIN HASKELL, Philadelphia:

Proctoscopic Views of Lesions of the Rectum and Sigmoid: Exhibit of specially arranged cases with tubes simulating the ordinary proctoscope in which are colored pictures approximating in size the actual lesion so that, when viewed through the tubes, they resemble the conditions found on proctoscopic examination; charts with brief descriptive notes of the lesions pictured will be placed on the walls.

WILLIAM Z. FRADKIN, Brooklyn:

Routine Study of the Diarrheas: Exhibit showing (1) apparatus used at bedside, including microscope, warm stage, sigmoidoscopes, aspirators, culture mediums and stains; (2) pathologic specimens; (3) charts illustrating the various possible etiologic factors in cases of diarrheas; (4) attempt at the etiologic classification of the diarrheas; (5) charts and models illustrating the aspiration of exudate from lesions in the sigmoid and rectum; (6) charts of bacteriologic and serologic observations in 100 cases of diarrhea; (7) value of blood agglutination tests in diarrhea; (8) practical application of bacteriophage in selected cases of diarrhea; (9) motion picture demonstration.

MAURICE FELDMAN, SAMUEL MORRISON, JOHN C. KRANTZ JR. and C. JELLEFF CARR, Baltimore:

Studies in pH of Bile and Gallstones: Exhibit of charts illustrating (1) effects of bile on stones, (2) changes in the pH variations in the different species of animals, (3) the effect on the pH of bile in the fistulous animals, and (4) the effect of drugs and diet and its effect on the pH of bile.

J. RUSSELL VERBRYCKE JR., Washington, D. C.:

Gallbladder Facts and Aphorisms: Exhibit of charts on diagnosis and treatment of gallbladder disease; analysis of a series with operative mortality in all cases of 1.95 per cent; acute cases with mortality of 4.6 per cent.

PORTER P. VINSON and EMANUEL U. WALLENSTEIN, Richmond, Va.:

The Differential Diagnosis and Treatment of Esophageal Diseases: Exhibit of drawings, photographs and x-ray films showing the different types of lesions encountered in the esophagus, with descriptions summarized under the headings of symptoms, diagnosis and differential diagnosis, treatment and results of treatment.

M. R. McQUIGGAN, Detroit:

Ulcerative Colitis—An Analysis of Forty Cases Treated According to the Method of Bergen: Exhibit showing (1) etiology, (2) pathology, (3) clinical and laboratory observations, and (4) treatment with Bergen's antiserum and vaccine prepared according to the method of Bergen.

BURRILL B. CROHN, A. A. BERG and A. PENNER, New York:

Rightsided Colitis: Life History and Surgical Treatment: Exhibit showing the usual type of nonspecific ulcerative colitis,

which begins on the left side of the colon, that is, rectum and sigmoid, a less common form that begins in the cecum or about the hepatic flexure, extending distally in the course of months or years, rarely resolving, following a downward course and completely disabling the patient. Resection in two stages is usually completely successful with a very low mortality: first stage: ileo-sigmoidostomy exteriorization of the upper cut end of sigmoid as colostomy; second stage: after six months of drainage, rightsided colectomy.

JEROME M. LYNCH, G. JOHNSON HAMILTON and EDWARD M. LEVY, The Lynch Clinic, Polyclinic Hospital, New York:

Stages in the Development of Adenocarcinoma of the Lower Bowel Together with an Anatomically Planned Operation for Their Eradication: Exhibit of photomicrographs, drawings, transparencies and gross specimens, showing how the operation for the eradication of adenocarcinoma of the lower part of the intestine removes sufficient disease condition to avoid death and yet spares enough bowel to render life worth while.

E. E. WOLDMAN and V. C. ROWLAND, Cleveland:

Peptic Ulcer Treatment by Continuous Aluminum Hydroxide Drip: Exhibit consisting of a gravity drip apparatus from a container of aluminum hydroxide suspension, through a Levin tube into a blown glass artificial stomach representing the patient; into the stomach is also dripped diluted hydrochloric acid with an indicator showing the continuous neutralization of acidity as carried out twenty-four hours a day by this method in peptic ulcer; roentgenograms before and after treatment and a group of charts summarizing the method, diets used, the properties of aluminum hydroxide and the results obtained; a new collapsible tube, nonirritating to the nose and throat and useful in preventing reflux of gastric contents.

HORACE W. SOPER, St. Louis:

Clinical Gastro-Enterology: Exhibit of charts showing a clinical summary and types of treatment in peptic ulcer diverticulosis of the colon; lesions of the small intestine; colon spasm; indicanuria, flagellate infections of the human digestive tract; cardiospasm; amebic dysentery; diathermy of the rectum and pelvic colon; ulcerative colitis; agar-agar; the oil enema, and biliary drainage.

J. L. BOLLMAN and L. K. STALKER, Mayo Clinic, Rochester, Minn:

Experimental Peptic Ulcers Produced by Cinchophen: Exhibit of wax casts of gross specimens and photomicrographs showing (a) preliminary gastritis and the subsequent development of chronic gastric ulcer; (b) stages of healing of the ulcer after discontinuance of cinchophen; (c) physiologic factors involved in the causation of the ulcer; (d) results of several methods of treatment applied to cinchophen ulcers.

I. R. JANKELSON and HENRY BAKER, Boston:

Infra-Red Photography of the Abdominal Wall in Cirrhosis of the Liver: Exhibit of photographs and infra-red pictures of the abdominal wall in health and in cases of cirrhosis of the liver; visualization of the venous network of the abdominal wall; normal and illustrative cases of the abdominal network of veins in cirrhosis of the liver; illustrative cases of pregnancy and other abdominal and pelvic diseases.

HENRY A. RAFSKY, Lenox Hill Hospital, New York:

The Nonsurgical Treatment of Pyloric Obstruction Resulting from Peptic Ulcer: Exhibit showing observations on patients suffering from pyloric obstruction resulting from peptic ulcer and treated by nonsurgical measures for a period ranging from three to ten years; follow-up results of this study are reported; the nonsurgical measures, including the method to facilitate the passage of a duodenal tube through an occluded pylorus, are described; the clinical significance of inflammatory and cicatricial pyloric obstruction both from the medical and the surgical standpoint as well as the importance of gastric decompression as a preliminary procedure before operative intervention is illustrated; the danger of alkalosis in the treatment of patients is emphasized.

MARTIN E. REHFUSS, Philadelphia:

Gastrophotography, a New Instrument with Improvements: Exhibit showing gastrophotography as done with a new

improved camera; actual photographs of the interior of the stomach, roentgenograms of these cases, abstracts of history and charts with complete description of surgical and pathologic changes.

ELMER L. EGGLESTON, GEORGE W. SLAGLE and BRUCE WHYTE, Battle Creek Sanitarium, Battle Creek, Mich.:

Behavior of Gastro-Intestinal Tract in States of Autonomic Imbalance: Exhibit showing photographic reproductions of serial gastro-intestinal films illustrating types of behavior under different degrees of imbalance and types of imbalance; charts showing signs, symptoms and physical observations, and graphs and summaries correlating roentgenologic and clinical studies.

Section on Radiology

ROBERT H. MILLWEE, Dallas, Texas:

Roentgen Slit Scanoigraphy: Exhibit of roentgenograms made through a slit while the tube was moving over the part, so that distortion in one direction is eliminated, and thereby showing the exact length of bones, or width of bones, or joint spaces; roentgenograms of hearts recording heart movement and the relative filling and emptying of ventricles and auricles in normal and diseased hearts; roentgenograms showing actual measurements of pelvic dimensions and the actual size of fetal heads; also, roentgenograms revealing change of radiographic density of tissues during physiologic changes, as in the contraction of muscles, and variation in density due to changes in distribution of the blood caused by respiration.

JAMES F. KELLY and D. ARNOLD DOWELL, Creighton University, Omaha:

The Treatment of Gas Gangrene with Roentgen Rays: Exhibit of case reports and their analysis supported by temperature charts, x-ray films and other evidence; variations in types of cases and variations in technique and the results; graphs and charts showing final conclusions.

EUGENE V. POWELL, Temple, Texas:

Roentgen Therapy of Pneumonias: Exhibit of reproductions of films showing the results obtained in cases of pneumonia in which roentgen therapy has been administered, together with a brief of their clinical history showing the course of the disease.

R. MANGES SMITH, Philadelphia:

Roentgen Treatment of Infections: Exhibit describing methods of treatment of various types of infections and illustrating the lesions before treatment as well as the results obtained; photographs before and after treatment, roentgenograms of lesions before and after treatment, temperature charts and case histories; all types of infections are included, including pneumonia, infection resulting from human bite, furuncles, carbuncles, infections about the lip and face, and sinus infection.

CLAUDE MOORE, Washington, D. C.:

The Teaching of Radiology in the Medical Schools: Exhibit of charts showing information concerning the teaching of radiology in medical schools of the United States. These charts will include the number of medical schools having an organized radiologic department, with the number and rank of men on the faculty of this department, and the number of hours devoted to teaching. Charts will show the medical schools having definite teaching connections with hospitals approved by the American Medical Association for a residency in radiology.

RICHARD SCHATZKI, Massachusetts General Hospital, Boston:

Roentgen Studies of the Inner Relief of the Gastro-Intestinal Tract: Exhibit demonstrating the value of a systematic study of the inner relief of the gastro-intestinal tract; the appearance of the inner relief in normal and in various pathologic conditions is shown, stress being laid on the diagnostic as well as differential diagnostic importance of the visualization of the inner surface of the gastro-intestinal tract.

RICHARD DRESSER, JOHN TRUMP and ROBERT VAN DER GRAFF, Massachusetts Institute of Technology, Boston:

One Million Volt Roentgen Ray Generator: Exhibit of a small model of the generator which will develop about 200 k.v.

C. F. CRAIN, J. M. SLOAN and E. F. STROUD, Corpus Christi, Texas:

Roentgen Treatment in Mastoiditis: Exhibit dealing with the x-ray diagnosis of infant mastoiditis; representative cases of infant and adult type mastoiditis treated by roentgen rays; general summary and statistical data of all cases of mastoiditis treated with roentgen rays by the authors.

GEORGE T. PACK and WILLIAM O. WUESTER, Memorial Hospital for Cancer and Allied Diseases, New York:

The Treatment of Epitheliomas of the Trunk and Extremities: Exhibit of photographs, moulages, charts, special radiation equipment and devices for application of radium and pathologic specimens showing the results of a study of epitheliomas of the trunk and the extremities.

EDITH H. QUIMBY, WILLIAM S. MACCOMB and L. D. MARINELLI, Memorial Hospital, New York:

Skin Dosage and Skin Recovery in Roentgen Therapy: Exhibit of charts showing (1) a correct method for measurement of backward scattered radiation, with data for its values, showing variation with area of field, depth of underlying tissue, and quality of radiation; the total skin dose is the sum of the direct and backward scattered radiation; (2) the effect of skin recovery on the accumulation of radiation effect; data for the calculation of the cumulative skin dose under various schemes of roentgen therapy in current use. For proper consideration of skin dosage it is necessary to take into account both sets of factors.

LEE A. HADLEY, Syracuse University College of Medicine, Syracuse, N. Y.:

Pathology of Cervical Spine: Exhibit of dissections, dried specimens, roentgenograms and microscopic sections from the cervical spine, showing pathologic conditions of the cervical spine, with special attention given to encroachment of the intervertebral foramina.

C. R. ORR, GEORGE D. POPOFF, RAYMOND S. ROSEDALE and B. R. STEPHENSON, Buffalo City Hospital, Buffalo:

Dangers of Thorium Dioxide Sol; Animal Experimentations: Exhibit of roentgenograms of gross material, photomicrographs, shadowgrams, histoshadowgrams, spinthariscopic demonstration and other data from experiments, proving that in rabbits thorium dioxide sol is a harmful substance, causing hepatic necrosis, hepatic cirrhosis, reticulo-endothelial blockade and splenic necrosis; demonstration that thorium dioxide sol is permanently stored in animal tissues; evidence that thorium dioxide sol is a definitely radioactive substance even after being immobilized in living tissues for two years. Because of these facts, it is suggested that the use of thorium dioxide sol be discontinued.

J. C. KENNING and J. E. LOFSTROM, Detroit:

Elimination of Intestinal Gas Shadows in Radiography: Exhibit of films and charts showing the effect of pitressin on the barium filled small bowel and colon as well as roentgenograms taken of the abdomen before and after the use of the drug, showing its efficacy in eliminating normal and abnormal collections of gas that may cause confusion or error.

A. O. HAMPTON, WILLIAM JASON MIXTER, J. MAURICE ROBINSON and JOSEPH S. BARR, Massachusetts General Hospital, Boston:

Rupture of the Intervertebral Disk into the Spinal Canal (Particular Reference to Lesions Causing Sciatica and Low Back Pain): Exhibit dealing with cases of rupture of the intervertebral disk into the lumbar spinal canal in which operation has been done at the Massachusetts General Hospital. These clinically important ruptures of the intervertebral disk have produced symptoms of cauda equina tumor, low back strain, sciatica and sacro-iliac disease; the cases have been studied from the anatomic, orthopedic, neurosurgical and roentgenologic points of view; the method of diagnosis by means of roentgen examination after the subarachnoid injection of iodized oil, the clinical indications for the examination and the surgical and orthopedic treatment of these cases are illustrated in detail.

SYMPOSIUM ON HEART DISEASE

The exhibit symposium on heart disease is presented by the Committee on Scientific Exhibit with the cooperation of the American Heart Association.

BURTON E. HAMILTON and K. JEFFERSON THOMPSON, Boston:

Heart Disease in Pregnant Women: Exhibit of charts showing changes in blood volume, circulation time, vital capacity, and so on; x-ray studies showing variation in heart size and shape during pregnancy; variations in distribution and size of subcutaneous veins during and after pregnancy and lactation shown by infra-red photographs; (1) in normal patients, (2) in patients with serious heart disease, (a) with no failure, (b) in congestive heart failure. Classification of heart diseases in pregnancy and maternal death rates, incidence of heart failure by months during death rate, causes of these variations and effect of treatment (prevention of approximately 75 per cent of the fatalities).

HOWARD F. ROOT, Boston:

The Heart in Diabetes: Exhibit of (1) placards with data indicating increasing frequency of cardiac complications (especially coronary disease) in diabetes; (2) electrocardiographic data concerning cardiac effects of hypoglycemia, electrocardiograms in complications; (3) treatment of coronary thrombosis with diet and insulin; (4) pathologic specimens.

P. A. O'LEARY and F. A. WILLIUS, Mayo Clinic, Rochester, Minn.:

Cardiovascular Syphilis: Exhibit of schematic drawings demonstrating the mechanism of the development of syphilitic cardiovascular disease; photographic illustrations of the pathology of cardiovascular syphilis and the symptoms it produces; a brief outline of treatment.

SAMUEL BROWN, Cincinnati:

Cardiovascular Syphilis: Exhibit of roentgenograms illustrating various phases of syphilis of the heart and great blood vessels; the importance of using several positions in the examination of the chest; the differential diagnosis of mediastinal lesions.

HENRY C. BAZETT, L. B. LAPLACE, J. C. SCOTT and MISS M. E. MAXFIELD, Department of Physiology, University of Pennsylvania, Philadelphia:

Estimation of Cardiac Output and Work and Their Relation to Arterial Resistance from Determinations of Blood Pressure and Vascular Elasticity: Exhibit showing apparatus for measuring pulse wave velocity and blood pressure optically on patients and demonstration of the actual method at stated times each day; records obtained on patients; calculation of cardiac output from the data together with the use of the method from measuring arteriolar resistance in hypertension and investigating the condition of the heart.

Z. T. WIRTSCHAFTER and LEONARD G. STEUER, Western Reserve University, Department of Medicine and City Hospital, Cleveland:

Pen Recorded Electrocardiograms and Phonograms: Exhibit showing the application of a portable high speed piezo-electric recorder "pen recording oscillograph" so designed that simultaneous permanent heart sounds and electrocardiographic tracings can be obtained directly on paper, thus eliminating the delay necessary for the development of film records; the records are comparable to those obtained by previous methods; the apparatus utilizes the piezo-electric properties of Rochelle salt for sound pickup and operating the pen of the recorder.

LOUIS GROSS, Mount Sinai Hospital, New York:

Experimental Studies on the Blood Supply to the Heart in Relation to Coronary Occlusion: Exhibit of charts, models, drawings, photographs and roentgenograms illustrating mechanisms by which the heart compensates for coronary narrowing; results of experimental attempts to enrich the myocardial vascular nutrition; results of physiologic studies on experimental coronary occlusion under various conditions.

CLAUDE S. BECK and F. R. MAUTZ, Lakeside Hospital, Cleveland:

Heart Injuries: Exhibit dealing with penetrating and non-penetrating types of heart injuries; illustrations of various acci-

dents producing cardiac injury; clinical classification—those with cardiac compression (surgical group), those without cardiac compression (nonsurgical group); pathology and clinical manifestations of each group; treatment of operative group, and nonoperative group; operative methods; illustrated by charcoal drawings and motion pictures.

CLAYTON J. LUNDY, Rush Medical College, Chicago:

Mechanism and Electrocardiographic Registration of the Heart in Health and Disease: Exhibit of charts and motion pictures showing the normal heart, six types of extrasystoles and of paroxysmal tachycardia, auricular flutter, auricular fibrillation heart block, acute coronary thrombosis and chronic arteriosclerotic heart disease. Heart action and electrocardiogram formation are depicted simultaneously.

GEORGE LEVENE, HENRY H. LERNER and EGON G. WISSING, Evans Memorial for Clinical Research and Preventive Medicine, Massachusetts Memorial Hospital, Boston:

The Roentgenoscopic Appearance of the Heart: Exhibit of a series of mechanical models in motion showing the appearance of the heart as seen under the fluoroscope, portraying rheumatic heart disease, syphilitic heart disease, arteriosclerotic heart disease and metabolic disturbances of the heart; each unit shows successive phases in the development and life cycle of a specific cardiopathy.

HARRISON S. MARTLAND, Office of the Chief Medical Examiner of Essex County, City Hospital, Newark, N. J.:

Pathology of Cardiovascular Disease: Exhibit of color transparencies showing typical examples of common and unusual cardiac lesions found at autopsy, together with a few enlargements and histologic appearances necessary to elucidate subject, arranged in order as a guide to the pathologic diagnosis of cardiovascular disease.

A. R. BARNES, Mayo Clinic, Rochester, Minn.:

Electrocardiographic Patterns of Diagnostic Importance in Certain Heart Diseases: Exhibit of photographs and electrocardiograms showing the electrocardiographic changes in acute anterior and acute posterior infarction; injection specimens of the normal coronary circulation and of a case of coronary occlusion; healing acute cardiac infarction; acute pericarditis complicating acute infarction; characteristics of the normal electrocardiogram; electrocardiograms in acute septic pericarditis; electrocardiogram in chronic left ventricular strain and of chronic right ventricular strain; in pulmonary embolism, and in chronic constrictive pericarditis.

HARRY GOLDBLATT, Cleveland:

Experimental Hypertension: Exhibit depicting (a) the work of other investigators designed to prove the renal origin of hypertension; (b) the method of renal ischemia for the production of hypertension by the author and collaborators, confirmed by others; (c) charts illustrating the work on dogs and monkeys designed to determine the mechanism whereby this type of hypertension is produced, and the value of various procedures designed to prevent or cure this type of hypertension; (d) photomicrographs and photographs of the organs and tissues of animals with experimental hypertension.

SAMUEL BELLET, Philadelphia:

Tuberculous Pericarditis: Exhibit of pathologic specimens of different types of tuberculous pericarditis, x-ray films showing the progress of this condition; photomicrographs, electrocardiograms and charts showing the incidence, racial susceptibility, age groups, the pathologic and clinical types and the important points in the diagnosis. Prognosis and treatment is also considered.

FRED L. ADAIR and EDITH L. POTTER, Chicago:

Congenital Heart Disease as Found in New-Born Infant: Exhibit of photographs and mounted specimens showing various anomalies of cardiac formation together with explanatory charts and diagrams; charts showing the external and internal appearance of the heart in the main groups of anomalies and diagrams showing the path of the blood stream in each condition; the relation of malformations to different periods of normal embryonic growth and a brief explanation of the development of the heart is included.

TIMOTHY LEARY, Boston:

The Evolution of Mitral Valvular Disease: Exhibit showing that the commonest pathologic lesion encountered in the human body is thickening of the contact edge of the mitral valve due to repair of lesions almost exclusively rheumatic in origin; the evidence suggests that infections of this type are almost universal and begin in childhood; in most human beings early infections are healed and remain so; in susceptible individuals, recurrent infections give rise to progressive deformity of the valve producing clinical mitral stenosis; enlarged photographs of mitral lesions, gross and microscopic, indicating the progressive character of the changes as acute rheumatic attacks succeed one another; motion picture illustrating the stages in progression from one phase to another.

HUGH ROBERTSON, Corinna Borden Keen Fellowship, Jefferson Medical College, Philadelphia:

Pulmonary Embolism: A Clinical Study of Its Cause and Prevention: Exhibit of models and drawings from actual dissections of the pulmonary artery, showing recent work on thrombus and embolism production; the types of patients who develop pulmonary embolism; an embolus lodging in the pulmonary artery; recent theories of prevention and treatment of pulmonary embolism.

M. C. WINTERITZ, Yale University School of Medicine, New Haven, Conn.:

Studies on the Pathology of Arteriosclerosis: Exhibit of drawings, films, photographs and specimens dealing with the anatomy and physiology of the blood vessel wall in health and disease, and presenting a new approach to the progressive changes grouped together under the term arteriosclerosis.

J. B. SCHWEDEL, New York:

Roentgen Cardiodynamics: Exhibit presenting a method and criteria of estimating cardiac enlargement, especially selective chamber enlargement, consisting of photographic prints of roentgenograms and specimens; explanatory charts, diagrams and postmortem specimens; the clinical significance of selective enlargement will be stressed.

HUGO ROESLER, Temple University School of Medicine, Philadelphia:

Correlation Between Anatomy, Pathology and Roentgenology of the Cardiovascular System: Exhibit of (a) normal and pathologic specimens cut in longitudinal sections, corresponding to the anterior and to both oblique views, permitting correlation between x-ray silhouettes as observed during life with the postmortem specimens, and giving instruction as to the inner topography of the silhouette; (b) x-ray films and gross postmortem specimens; (c) demonstration of the principle of the roentgenologic, volumetric reconstruction of the heart and great vessels, method of Palmieri, as illustrated by photographs and models.

A. J. NEDZEL, Chicago:

Experimental Endocarditis Due to Pressor Episode: Exhibit of photomicrographs, gross specimens and slides showing that pitressin injections cause endothelial changes on the heart valves, which cause the stickiness of the endothelium and the settling of floating bacteria; in due time a bacterial endocarditis develops; if no bacteria are present, the changes in the heart valves (mostly mitral) resemble a rheumatic (nonbacterial) endocarditis.

L. S. YLVIKAKER and HENRY B. KIRKLAND, Newark, N. J.:

Heart Size and Contour: Normal Variability Factors: Exhibit showing the variations in size, contour and position of normal hearts studied by means of roentgenograms, and the factors influencing these variations; deviations from normal have been thoroughly studied clinically to rule out disease; the importance of rigidly controlled and standardized technic is emphasized; the necessity of caution in diagnosing cardiac abnormalities on the basis of roentgenograms alone is stressed; x-ray observations are shown to serve rather than to direct further analysis of the heart condition.

A. CARLTON ERNSTENE, Cleveland Clinic, Cleveland:

The Heart in Hyperthyroidism: Exhibit of charts summarizing the effect of hyperthyroidism on the heart and circulation;

an analysis of the cardiovascular complications observed in 1,000 consecutive cases of hyperthyroidism, auricular fibrillation, auricular flutter, paroxysmal tachycardia, angina pectoris, cardiac asthma and congestive heart failure, and a synopsis of the management of cardiovascular complications in hyperthyroidism.

WILLIAM J. KERR, A. M. BASSETT, M. J. GOLDMAN and T. L. ALTHAUSEN, University of California Medical School, San Francisco:

The Synballophone, an Improved Stethoscope for the Lateralization and Comparison of Sounds: Exhibit demonstrating the construction and use of a new stethoscope which permits utilization of the function of the ear in locating the origin of sounds and in comparing their qualities; other acoustic devices of small size are used to illustrate the functions of the ear.

AMERICAN HEART ASSOCIATION, New York:

Educational and Exhibit Material of the American Heart Association: Exhibit of books, pamphlets and leaflets on various phases of cardiovascular disease.

EDUCATIONAL CLASSIFICATION

Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than of individuals and which are intended to show progress in the particular activities with which those institutions deal.

These exhibits are not open to medal awards, but a special certificate of merit is presented to the best exhibit in this classification.

COMMITTEE ON EVALUATION OF SERODIAGNOSTIC TESTS, United States Public Health Service, Washington, D. C.:

The Performance of Serodiagnostic Tests for Syphilis in State Laboratories: Exhibit concerning an evaluation of the performance of serodiagnostic tests for syphilis in the state laboratories of this country. Thirty-nine state laboratories participated and performed a total of seventy-two tests, performance being evaluated on the basis of specificity and sensitivity; results obtained in state laboratories have been compared with results obtained by serologists who originally described many of the serodiagnostic tests; samples of blood from a large specimen were provided to all laboratories.

UNITED STATES PUBLIC HEALTH SERVICE, Division of Venereal Diseases, Washington, D. C.:

Modern Educational Measures for the Control of Syphilis: Exhibit of placards dealing with the public health and clinical aspects of the control of syphilis; data pertaining to the prevalence and control of syphilis; motion pictures dealing with the control of this disease.

AMERICAN SOCIAL HYGIENE ASSOCIATION, New York:

Gonorrhea: Its Present Status: Exhibit of (1) photographs, charts, lantern slides, other demonstration materials and reprints of authoritative medical and public health statements; epidemiologic studies; (2) summary of supplemental survey of research on the gonococcus and gonococcal infections; (3) the status of new therapeutic measures.

AMERICAN NEISSERIAN MEDICAL SOCIETY:

Gonorrhea: Its Present Status: Exhibit under the auspices of the American Neisserian Medical Society and in conjunction with the American Social Hygiene Association dealing with all important phases of gonorrhea.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Chicago:

Medical Education: Exhibit of charts depicting the various activities of the association, such as the study of student accomplishment in medical schools, correlated with their scholastic records in the arts colleges; study of applicants for admission to medical schools; the Intern Placement Bureau.

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia:

Exhibit of charts describing the work and progress of the National Board of Medical Examiners and the results of its examinations.

ADVISORY BOARD FOR MEDICAL SPECIALTIES:

Exhibit of charts, graphs and literature describing the work of the Advisory Board for Medical Specialties and of the examining boards for certification in medical specialties, including the American Boards of Ophthalmology, of Otolaryngology, of Obstetrics and Gynecology, of Dermatology and Syphilology, of Pediatrics, of Psychiatry and Neurology, of Radiology, of Orthopedic Surgery, of Urology, of Pathology, of Internal Medicine and of Surgery.

UNITED STATES PHARMACOPEIA:

An exhibit illustrating the series of articles recently published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on "The Pharmacopeia and the Physician." These articles were prepared for physicians and to supply information concerning the use and prescribing of official medicines.

AMERICAN PHARMACEUTICAL ASSOCIATION, Washington, D. C.:

The National Formulary: Exhibit of some of the new and more important items of the National Formulary, Sixth Edition.

BUREAU OF CHEMISTRY AND SOILS, U. S. Department of Agriculture, Washington, D. C.:

(a) *Medicinal Products Made by Mold Fermentation*; (b) *Copper-Free Rosin for Plastic Work*; (c) *Hazards in Utilization of Agricultural Products*; (d) *Therapeutic Value of Phenothiazine*: Exhibit showing the methods and process of manufacture of medicinal products by mold fermentation; samples of copper-free rosin for plastic work and metal-free turpentine for medicinal use are shown and methods of manufacture are described; hazards arising from utilization of agricultural products, namely: dust explosions, spontaneous ignitions, explosives generated in extracting plants, suffocation from fermentation of gas; the therapeutic value of the insecticide phenothiazine.

CONNECTICUT STATE MEDICAL SOCIETY CANCER COMMITTEE, New Haven, Conn.:

Connecticut State Cancer Program: Exhibit of diagrams showing the organization of the Connecticut cancer program and demonstrating the coordination of the efforts of the state medical society and the state health department in fostering their movement; colored maps and graphs depicting variation in cancer mortality and age distribution of the population throughout the state; pin spot maps indicating existing clinic facilities for diagnosis and treatment in various Connecticut hospitals; standard tumor record forms used in institutions.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER, New York:

Women's Field Army of the American Society for the Control of Cancer: Exhibit of charts and diagrams showing the objective and progress to date of the Women's Field Army of the American Society for the Control of Cancer since its inception in the early part of 1936.

NATIONAL CONGRESS OF PARENTS AND TEACHERS, Washington, D. C.:

Health Activities of the National Congress of Parents and Teachers: Exhibit featuring the activities of the National Congress of Parents and Teachers which relate to the development of health; (1) model portraying the Summer Round Up of the Children, an activity of the National Congress; (2) posters and booklets showing work of the Congress.

AMERICAN ASSOCIATION OF MEDICAL SOCIAL WORKERS, Chicago:

Exhibit of charts and reports of studies on social aspects of illness, rôle of the medical social worker and development of social service departments within hospitals.

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION, New York:

Occupational Therapy: Exhibit of charts, photographs, case histories and other objects presenting the principles of occupational therapy and the results of such treatment.

AMERICAN PHYSIOTHERAPY ASSOCIATION AND VISITING NURSE ASSOCIATION OF CHICAGO:

Improved Physical Therapy Equipment for the Home Care of Anterior Poliomyelitis: Exhibit of photographs and models

of home-made apparatus for the care of patients, including such equipment as a tank for underwater exercises and apparatus for lifting the patient in and out of the water, improvised portable carts and other appliances; simple splints for maintaining correct posture and demonstration of the making of these splints; motion picture showing early physical therapy and orthopedic nursing care.

BUREAU OF ANIMAL INDUSTRY, U. S. Department of Agriculture, Washington, D. C.:

Diseases Common to Domestic Animals and Man: Exhibit of maps regarding bovine tuberculosis and Bang's disease in the United States; pathologic specimens and photographs.

ARMY MEDICAL MUSEUM, Office of Surgeon General, Washington, D. C.:

Registry Activities of the Army Medical Museum: Exhibit of photomicrographs, gross material and lantern slides showing type cases from the Registries of Ophthalmology, Otolaryngology, Lymphatic Tumors, Bladder Tumors and Dental Pathology.

FEDERATION OF AMERICAN SANATORIA:

A Few Things the Family Physician Should Know About Tuberculosis: Exhibit of charts and placards illustrating the pertinent message of what the family physician should know about tuberculosis.

NATIONAL TUBERCULOSIS ASSOCIATION, New York:

The Tuberculin Test: Exhibit of (a) photographs and text describing the technic of giving the tuberculin test; (b) moulages of tuberculin reaction; (c) text on the significance of the reaction; (d) photographs showing steps in the purification of tuberculin; (e) sample of purified protein derivative; (f) graphs on percentages of positive reactors.

CHILDREN'S BUREAU, U. S. Department of Labor, Washington, D. C.:

Maternal and Child-Welfare Services, 1937, Under the Social Security Act, Title V, Parts 1, 2 and 3: Exhibit showing (a) type of activity, (b) personnel paid in whole or in part from funds administered by the United States Children's Bureau, and (c) source of funds.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Registry of Technologists, Denver:

Exhibit of charts and placards illustrating the aims and work of the registry; the distribution of registered technologists; information on approved training schools; qualifications necessary for registration.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, Committee on Deafness Prevention and Amelioration:

Exhibit of photographs, charts and lantern slides illustrating the activities of Committee on Deafness Prevention and Amelioration of the American Academy of Ophthalmology and Otolaryngology; methods of early detection of hearing deficiency in children; acoustically treated booth for insuring accuracy in making hearing tests.

THE UNITED STATES NAVY, Medical Department, Washington, D. C.:

Naval Medical Activity Pertaining to Preventive and Industrial Medicine and Public Health: Exhibit dealing with lung training (submarine escape device), life aboard ship, and messing system and its operation to prevent food poisoning; models of deep sea divers, diving pump and accessory gear; a series of submarine lungs in order of their development, some of which will be in cross section; photographs of the morbid anatomy of compressed air illness occurring in the U. S. Navy; recompression chambers for treatment of compressed air illness; data relating to the calculations of decompression tables estimating divers' air requirements and control of diving pumps; types of breathing apparatus; respirators and inhalators, and gas detecting instruments used in the U. S. Navy; a modified Haldane apparatus for determining cardiac output under varying atmospheric pressure—aviation and diving; shallow water diving outfit; sand blasting operations as employed in various U. S. navy yards; aviation oxygen breathing outfit

for high altitudes; full line of protective goggles, gloves, and respiratory equipment; model of a hospital ship and photographs of the later types of submarines.

AMERICAN MEDICAL ASSOCIATION

The exhibits from the headquarters group of the American Medical Association will be found in various parts of the hall. These exhibits are not open to awards.

COUNCIL ON PHYSICAL THERAPY:

Exhibit of apparatus demonstrating by vision, sound and touch how diathermy and short wave diathermy will heat the body tissues without causing electrical muscle stimulation (shock); charts and histologic specimens of damaged monkey tissues caused by severed nerves demonstrating effects of electrical muscle and nerve stimulation versus massage and active motion; charts bearing on the Council's educational program.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS:

Exhibit of statistics on (1) medical education; (2) medical licensure; (3) hospitals; results of the survey of medical education; methods of evaluating the work of medical schools; publications of the Council, including essentials and revised lists of hospitals approved for residencies in specialties, hospitals approved for training interns, schools for laboratory technicians, schools for physical therapists and schools for occupational therapists.

BUREAU OF HEALTH AND PUBLIC INSTRUCTION:

Doctors Must Be Health Teachers: Exhibit showing four principal mediums of publicity which local medical societies can use for furthering health education in their communities: newspapers, radio, meetings and pamphlets; what the local societies can do along these lines, and how the Bureau of Health and Public Instruction is prepared to help them.

COUNCIL ON PHARMACY AND CHEMISTRY:

Exhibit dealing with an exposition of Council studies and activities, special reference being made to vitamins and hormones.

BUREAU OF LEGAL MEDICINE AND LEGISLATION:

Exhibit of posters and charts showing (1) activities of the bureau and (2) the prevalence or effect of certain laws of interest to the medical profession, such as the Federal Social Security Act, and laws and bills relating to the basic sciences, narcotic drugs, hospital insurance, health insurance, medical liens, reporting of gunshot wounds, annual registration of physicians, cults, and the corporate practice of medicine.

AWARDS

There will be two classes of awards consisting each of (a) gold medal, (b) silver medal, (c) bronze medal and (d) three certificates of merit.

[NOTE.—The special (subsidized) exhibits (anesthesia and fractures) and the exhibits of the headquarters of the American Medical Association are not open to awards.]

CLASS I

Awards in class I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation.

CLASS II

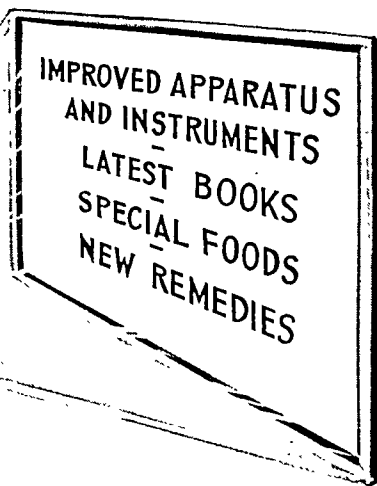
Awards in class II are made for exhibits that do not exemplify purely experimental studies, which are judged on basis of the excellence of correlating facts and excellence of presentation.

Medals are awarded only to individuals. A special certificate of merit will be awarded to the best educational exhibit in the Educational Classification (this includes exhibits by national societies).

The Committee on Awards will be composed of five persons. It will make the decisions on Wednesday.

The names of the members of the Committee on Awards will not be available until after the decisions have been published.

The TECHNICAL Exposition...



A SHOWING BY MORE
THAN 220 FIRMS

* Apparatus and Instruments

Extensive Aloe Display

The new De Bakey Blood Transfusion Instrument and also a complete general line of surgical instruments and sundries will be shown by A. S. Aloe Company in Booth 159. In Booth 171 the new Aloe Steeline physicians' furniture, in a full selection of colors, will be displayed, together with the new Aloe Short Wave and other physical therapy equipment. In Booth 105 the firm will show a complete line of clinical laboratory equipment. Competent representatives will be in attendance.

New Surgical Handles and Blades

Stop at Booth 177, where the American Safety Razor Corporation will exhibit its latest surgical handles and blades. The attendant in charge will be glad to supply you with samples of the new laboratory-developed blades, which are now standard equipment in many of the leading hospitals throughout the country.

For Surgeon and Urologist

Advances in urological armamentarium during the past year will be shown in Booth 83, by C. B. Bard, Inc. In addition to their complete line of Eynard (France) products, the firm will show an absolutely odorless colostomy pouch, electrically lighted ureteral catheters, Latex soft rubber catheters and drains. As usual, guests will not be solicited to purchase.

Will Show Rib-Back Blade

The Bard-Parker Company, Booth 103, will demonstrate the outstanding features of their Rib-Back blade, which incorporates new standards of cutting efficiency and economy. Also *the Sharp* they will show a complete line of stainless steel scissors with renewable edges, and a selection of quality forceps with the Lahey lock.

(Continued on page 1618)

PHYSICALLY, the Technical Exposition is impressive because of its sheer size. This year, in the Auditorium at Atlantic City, the Exposition will completely cover an area of more than an acre and a half. The products of more than 200 manufacturers will be shown. The articles on display will cover practically the whole scope of the physician's needs, ranging from a tiny speck of radium to heavy X-Ray or Ultra-Violet generators of huge proportions.

BUT, the Technical Exposition is more than a mere assembling of products into one place—behind it is a well defined educational purpose. True, manufacturers are present to sell their products, but they realize that the best way to sell a product is to show how it will serve the physician's needs. Consequently, in most of the exhibits the visitor will find not merely products, but capable, trained, experienced representatives who know the practical applications of those products.

FURTHERMORE, many manufacturers make it a point to introduce their new items at the Exposition. Often the visitor will find present the scientist or technician responsible for the development of the product. Physicians are, therefore, urged to take ample time to visit the exhibits. Each and every display has some definite point of contact with the medical practitioner, be it pharmaceuticals and biologicals, medical books, instruments, apparatus, electrical equipment, dietetic products, or specialized services.

THE entire Technical Exposition will be located on the main floor of the Auditorium. It will be open from 8:30 A. M. until 6:00 P. M. daily, closing at 4:00 P. M. on Friday. Practically all of the activities of the Convention, including general meetings, section meetings, etc., will be housed in the Auditorium, and visiting physicians will, therefore, find it convenient as well as pleasant and profitable to make leisurely, unhurried visits to the various exhibits.

WILL C. BRAUN, Superintendent of Exhibits



Demonstrating an actual manufacturing process.

Made for the Profession

Becton, Dickinson & Company will be represented with an extensive display of products, including fever thermometers, syringes, needles, Ace bandages, Asepto syringes, diagnostic instruments and professional leather goods. Of unusual interest should be the demonstration of blowing and processing syringes from the glass tube, and the actual making of B-D fever thermometers. Booths 134, 135, 136 and 147.

New All Steel Office Outfit

The Frank S. Betz Company will have on display in Booths 198 and 199 a complete line of up-to-date surgical instruments, physicians' bags, medicine cases, an all steel office outfit finished in hand grained walnut, and other new merchandise. Do not fail to call at the booth for your souvenir.

Modern Surgical Lighting

All surgeons are invited to call at the Wilmot Castle Booth, No. 220, and inspect the satisfying features of the Castle Light for operative work in either hospital or office. Also there will be on display the new models of the Castle Sterilizer, with its safety, automatic security and pleasingly modern style.



Cayo Power Instruments

In Booth 256-H, the Cayo Company will demonstrate their bone instruments and explain the technic they use in various operations. Among the features worthy of note will be the Cayo method of entering the surgical field without danger of contamination.

A New Scalpel Blade

The Crescent Surgical Sales Company will show their new scalpel blade, which has the scientifically developed angle of 16 degrees and is one-third thicker throughout the entire body of the blade. This greater thickness of metal gives more rigidity and a definitely sharper edge. Free samples are available to surgeons. Booth 210.



Sutures for Every Purpose

Their complete line of sterile sutures will be displayed by Davis & Geck, Inc., in Booth 216. This line includes a wide variety of interesting products especially designed for various situations in accident

and emergency work, as well as in general surgery and the specialties. A further feature of the exhibit will be motion pictures in full color, showing various operative procedures.

Fracture Appliances

In Booth 117 the DePuy Manufacturing Company will show late developments in high-grade splints, made of the finest quality of materials. The firm invites physicians to call and give their criticisms and suggestions. Trained men will be in attendance.

DeVilbiss Display

The complete DeVilbiss line of atomizers, steam vaporizers and nebulizers will be on display in Booth 203. Specially featured will be illustrations, based on X-ray research, graphically showing the coverage afforded by the atomizer in the application of solutions to the nose and throat. Copies of these illustrations for reference may be secured from the representative in charge.

Resuscitation Apparatus

Resuscitation equipment on the principles of Yandell Henderson, Flagg and McCormack, as sponsored by the Society for Prevention of Asphyxial Death, will be shown in Booth 51 by the Foregger Company, which makes a specialty of gas therapy. This firm will also have on display interesting new developments in carbon dioxide absorption apparatus for inhalation anesthesia.

Electric Rotary Pump

In addition to exhibiting their complete line of surgical specialties, including the circumcision clamp, the umbilical clamp, etc., the Gomco Corporation will exhibit their new electric rotary pump, with motor and compressor built into one compact unit.

Gas Anesthesia Equipment

The Heidbrink Company, Booth 232, will have an extensive display of the latest developments in gas anesthesia and oxygen therapy equipment. The exhibit will be in charge of a competent representative, who will be glad to discuss or demonstrate any piece of equipment shown.

Suction and Pressure Apparatus

The Penn Surgical Manufacturing Company will exhibit in Booth 207 the latest development in suction and pressure apparatus, a noiseless suspended power motor driven rotary compressor pump, the complete apparatus mounted on coil springs which eliminates all noise and vibration.

Surgical Instruments

In Pfau's American Instrument Company Booth, 132, specimens showing the various stages of Dr. Lempert's appendectomy operation will be shown. There will also be diverse anatomical models of new plastic, and ear, sinus and laryngo-bronchoscopic instruments on display.

New Treatment Units

The Philadelphia Surgical Instrument Company plan to display, in Booth 256-C, the new Collens-Wilensky apparatus for intermittent venous occlusion in treatment of thrombo-angitis obliterans and other diseases of the blood vessels. The firm will also show the new Wappler cold cautery scalpel, as well as their popular low-priced treatment cabinet, which embodies in one unit suction and pressure pump, cautery and diagnostic light equipment.

Chevalier Jackson Instruments

An opportunity to examine a modern, complete showing of thoracic instruments, many new brain and eye, ear, nose and

throat instruments, and the well known Chevalier Jackson bronchoscopic instruments will be afforded by the George I. Pilling exhibit. Their pneumothorax apparatus will include a wide choice of both hospital and portable types. Booths 187, 188

Portable Operating Lights

The Prometheus Electric Corporation Booth 120, will demonstrate an unusual complete line of lamps for specialized surgical illumination. Portable operating lights for all purposes will be featured from the smaller minor surgery model to the larger major auxiliary type. Particular emphasis will be placed upon the problem of emergency illumination when current fails. Modern sterilizing equipment and other items will also be shown.

Suction and Pressure Apparatus

A visit to the J. Sklar Manufacturing Company Booth, 258, will give opportunity to examine a complete line of improved designs in suction and pressure apparatus, including the new, modern Moorhead Cabinet. There will also be a showing of Sklar's American-made stainless steel surgical instruments. Of particular interest will be the Dr. A. T. Moore instruments used in treatment of fracture of the hip joint.



Hearing Aids and Audiometers

The Sonotone Corporation will exhibit new developments in electrical hearing aids, including the Sonotone Audicle, which provides selective amplification in different frequency ranges and which is fitted to individual needs by means of a new instrument, the Audioscope. Also on display will be the Sonotone Audiometer, a high precision instrument for measuring hearing loss, providing seven fixed frequencies sweep frequencies and special bone and air conduction receivers. Booth 68.

Fracture Equipment

A number of new items recently added to the line of Zimmer Manufacturing Company will be displayed in Booth 178. All doctors interested in skeletal traction are urged to investigate the advantages of the Clayton attachments for the leg and arm reduction apparatus. Representatives in charge of the booth will explain the Smith-Peterson technic for nailing fractures in the neck of the femur, and instruments for this work will be shown. A complete line of splints will also be on display.

Peripheral Vascular Equipment

The U.M.A. Inc. plan to exhibit (Booth 110) the intermittent venous occlusion apparatus described in The Journal A.M.A. of Dec. 12, 1936, by Doctors Collens and Wilensky. This apparatus is concerned with increasing the collateral flow to extremities suffering from organic obliterative arterial disease, and is used in the treatment of thrombo-angitis obliterans and other peripheral vascular affections. The firm will also exhibit a new mercury skin thermometer, a new thermocouple and an oscilloscope.

For the Operating Room

The Mont R. Reid major operating table, which comprises many mechanical ingenuities, will be shown by Max Woehner & Son Company in Booth 111. Also a new design of operating room illuminating fixture, comprising three circuits, including an emergency circuit, will be displayed, as well as alternate vacuum-pressure outfits for treatment of sinus trouble and congestions, and an attractive display of modern, high class instruments.

*List of Exhibitors

Firm Name	Aisle	Space No.
Abbott Laboratories	F	115-116
Adlanco X-Ray Corp.	C	215-216
Acfa Anasco Corp.	AA	256-1
Acfa Co., W. D.	G	99-100
Allison Co., A. S.	E-D-G	159-174-105
Amer. Can. Co.	I	45
Amer. Cystoscope Makers	AA	256 A-B
Amer. Gas Accu	E & G	256-105
Amer. Hosp. Sul		
Amer. Inst. of		
Amer. Med. Assn.	Aug	256-105

Firm Name	Aisle	Space No.
Amer. Med. Spec. Co.	J	29
Amer. Optical Co.	J	11-12-13
Amer. Safety Razor Corp.	D	177
American Seating Company		
American Sterilizer Co.	G	50-91
Amer. Century Co.	B	225
Appleton Chem. Co.	H	67
Arlington Laboratories	J	18
Azmo's Nat. Phys. Ex.	D	172
Bard Inc., C. R.	H	83
Bard-Parker Co.	G	103

Firm Name	Aisle	Space No.
Bauer & Black	Adj. Reg.	263
Baum Co., W. A.	F	137
Bausch & Lomb	J	21-22-23
Becton, Dickinson Co.	E-F	147-134-5-6
Becher Company, J.	Adj. Reg.	10 ft. of 267
Beech-Nut Packing Co.	H	27
Bel & Howell Co.	J	27
Betz Co., Frank S.	C	192-193
Billhuber-Knoll	B	233
Blackiston's Son & Co.	E	153
Borden Company	F	128

Fracture Splints

The complete line of Roger Anderson fracture splints will be shown in Booth 15 by The Tower Company, Inc. Of special interest will be the constant contact method

of treating fractures of the hip with the Well-Hip splint. Actual demonstrations on aluminum models and new motion pictures on technique will be featured. The ambulatory method of treating fractures will also be exhibited.

* Dietetic Products

American Can Exhibit

All registrants are cordially invited to call at the American Can Company Booth, where information will be available concerning those aspects of commercially canned foods which are of greatest interest to the medical profession. Literature on canned foods designed specifically for the physician's use will also be on display. Booth 45.

Borden's Eightieth Year

A warm welcome awaits physicians at the Borden Booth, 128. Specially trained representatives will gladly provide information on Borden products, notably Dryco, Special Dryco, Klim, Beta Lactose, Merrell-Soule prescription products and Borden's irradiated evaporated milks.



Irradiation of Milk

The Carnation Company invites you to visit Booth 248, where you will see the seven important steps in the production of Irradiated Carnation Milk presented by means of animated illumination. The methods and equipment used in testing and protecting the quality of Carnation Milk will also be demonstrated.

Clapp's Strained Baby Foods

Harold H. Clapp, Inc., will have on display in Booth 228 their complete line of 16 varieties. Representatives will be glad to discuss the individual characteristics which feature Clapp's Baby Foods and make them outstanding in their field. Literature and samples will be available to physicians.



Foods for the Diabetic

Sugar-free chewing gum, sugar-free desserts and sugar-free sweets will be shown by Chicago Dietetic Supply House, Inc. Also included will be a complete line of low carbohydrate foods for sugar and starch restricted diets, including flours, cereals, canned fruits and vegetables. Special features will be Cellu "Juice-Pak" fruits, packed in natural juice without added water or sugar, and Cellu Fruit Juices, natural, undiluted juices packed for special diet purposes. Booth 138.



Karo-Dextrose Exhibit

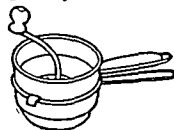
In Booth 253, Corn Products Refining Company will present interesting data and literature on the uses and administration of Karo Syrups and pure Dextrose. Representatives will show why Karo Syrup is of special interest to pediatricians, and will supply complete information, culled from world literature, explaining to physicians generally the successful uses for Dextrose in many types of disturbances.

New Products for Infants

Two new foods for the infant, Strained Apricot-Apple Sauce and Strained Liver Soup with Vegetables will be shown by Gerber Products Company in Booth 247. Their two types of literature, for distribution to patients and for professional use, respectively, will be on display, and will be mailed, together with samples of the foods, to registrants at the booth.

Easy Way to Strain Foods

In Booth 73 the Foley Manufacturing Company will demonstrate how easily and quickly fresh cooked vegetables and fruits are mashed or strained with the Foley Food Mill, made of steel, rust-proof, acid-proof, and easy to clean. It will be shown in three sizes.



Four Exhibits by Mead Johnson

Mead Johnson and Company will maintain four points of interest for the physician, as follows: A general exhibit, with all products and services on display, and a showing of original Posthast paintings; medical motion pictures, with a number of new subjects of special interest to pediatricians; Pabulum exhibit, featuring charts and showing appetizing dishes which can be made with Pabulum; Oleum Percomorphum exhibit, with color transparencies and aquarium containing live members of the order Percomorphi. Booths 1, 2, 127, 263, 264 and Room A.

General Mills Display

In addition to showing Embo (Wheat Embryo), "Kitchen-Tested" Flour, Wheaties, Bisquick, and Soft-silk Cake Flour, with literature on their nutritive value, General Mills, Inc., will feature an unusual development for inspection of physicians, at Booth 269.



Dole Pineapple Exhibit

Glamorous island scenes, true to Hawaii in brilliant color and subject, will distinguish the Hawaiian Pineapple Company Booth, 271. In this hospitable atmosphere the company will serve Dole Pineapple Juice, the natural unsweetened juice of sun-ripened fruit. The complete line of Dole Pineapple products will also be displayed and sampled. Specially featured will be the new "Royal Spears" and "Dole Pineapple Gems."

Rennet-Custard Desserts

In Booth 88 The "Junket" Folks, Chr. Hansen's Laboratory, Inc., will demonstrate how quickly and easily rennet-custards are prepared with "Junket" Rennet Powder and Rennet Tablets. Prepared from fresh milk, rennet-custards are recommended



attendant will be on duty.

Try a Glass of Tomato Juice

H. J. Heinz Company, makers of the 57 Varieties, invites you to visit their new exhibit featuring strained foods, breakfast

cereals, tomato juice and olive oil. A cold drink of Heinz Tomato Juice will be served to visitors, and physicians are invited to register for the fourth edition of the Nutritional Chart, which has been revised to keep abreast with the rapid advances in the field of nutrition. Booth 204.

Evaporated Milk Irradiation

A miniature irradiator, actual rays for the enrichment of the milk with vitamin D, will be displayed by the Irradiated Evaporated Milk Institute, Booth 125. Literature will be available on infant feeding.



Sanka Coffee to Be Served

Visitors are invited to stop at General Foods Booths 223 and 224 to have a cup of Sanka Coffee, from which 97% of the caffeine has been removed without affecting the rich flavor and aroma of the coffee. The new D-Zerta, an attractive sugar-free gelatin dessert for the diabetic or others on a low-carbohydrate diet, will also be on display.



Mellin's Food Display

Physicians are invited to call at Booth 166 to discuss their feeding problems with representatives of Mellin's Food Company. The latter will be glad to furnish information concerning the favorable effect of Mellin's food on the digestibility of milk, and other factors which commend it as a milk modifier for infant feeding and for special diets of adults.



Have a Cup of Coffee

For the thirteenth consecutive year the Kellogg Company will have a booth in the Technical Exhibit. Kaffee Hag Coffee, from which 97% of the caffeine has been removed, will be served in Booth 270. You are invited, when tired of walking the boardwalk and attending meetings, to stop and have a refreshing drink of this beverage. A well informed representative will be in charge.



One of many busy corners at last year's Exposition.

* List of Exhibitors

Firm Name	Aisle	Space No.
Buck X-Ograph Co.	J.	9
Bulck Motor Div.	Entrance Lobby	
Burdick		
Calco		
Cambr		
Camrou Surg. Inst. Co.	J-D.	19-175
Camp & Co.	S. H.	262 & Room B
Carnation Co.	A.	248
Cash, Inc., J. & J.	L.	59
Castle Company, Wilmet.	B.	220
Cayo Company	AA.	256-H

Firm Name	Aisle	Space No.
Chappel Bros.	I.	46
Chicago Diet. Sup. House.	F.	138
Church & Dwight.	F.	134
Ciba Pharm. Products.	J.	35
Cilkhold Co.	J.	3
Clapp, Inc., Harold H.	B.	228
Clay-Adams Co., Inc.	G. N. half space	88
Collins, Inc., Warren.	I.	62
C. M. A. B.	A.	Adj. 264
Corn Products Ref. Co.	A.	253
Corn Products Surg. Sales Co.	B.	240

Firm Name	Aisle	Space No.
Cutter Laboratories	B.	242-243
Davies, Rose & Co.	H.	64-65
Davis Co. F. A.	B.	170
Davis & Geck, Inc.	A.	246
Day's Ideal Baby Shine Co.	AA.	256-G
DeForest Laboratories	G.	111
DePuy Mfg. Co.	F.	117
DeVillies Co.	F.	203
Diagraph Prod. Co.	J.	52
Drug Products Co.	J.	32
Dublin Labs., H. E.	F.	119



Sampling one of the many beverages.

A Completely Modified Milk

Similac, a completely modified milk for infants deprived of breast feeding, will be displayed by M & R Dietetic Laboratories, Inc., Booth 186. Qualified representatives will gladly explain the value of the zero curd tension of Similac as it applies to both normal and special feeding cases.



See the Mechanical Cow

Visitors to Booth 58 will be entertained by the famous Nestle's Milk Products, Inc., Mechanical Cow, a versatile creature who blinks her eyelids, wags her head, flicks her tail, and punctuates these actions with contented moos. Literature and samples of Lactogen, Hylac and Nestle's Food will be available to physicians.



S. M. A. and Smaco Products

S. M. A. Corporation, Booths 122 and 123, will display S. M. A., the antirachitic and antispasmodic breast milk adaptation; Protein S.M.A. (Acidulated) for premature and other infants requiring high protein intake; Smaco Carotene, in crystal, liquid and capsule forms, plain and combined with Vitamin D concentrate; Hypo-Allergic Milk, liquid and powder; Alerdex, protein-free maltose and dextrins; and other products.



Evaporated Milk Plant

An actual working model of a milk condensing plant in miniature, every part constructed to scale, will be exhibited by Pet Milk Company in Booth 107. It will show the method by which the milk is processed from the time it is received from the farmer until it is sterilized in the can ready for use. A dozen miniature Pet Milk cans, one of which will charm any child patient, will be given to each physician who visits the Pet Milk Booth.



Tomato Juice on Tap

Kemp's Sun-Ray Pure Tomato Juice will be dispensed free to thirsty doctors at the convention. The Sun-Ray Company will display a trophy won for the high quality Indiana tomatoes used, and will call attention to the patented process by which the juice is made to insure vitamin potency, non-separation, and smooth, full-bodied flavor.

Palatable Products for Baby

Strained Foods for babies will be exhibited by Stokely Brothers & Company in Booth 85. Four new varieties, Liver Soup, Beef Broth, Unstrained Soup and Apple Sauce will be shown in addition to the usual line—all packed in golden enamel lined cans, correctly seasoned with salt or sugar under laboratory control, and all distinctly palatable. Visitors are invited to call.

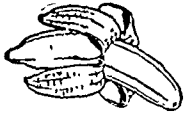


To Serve Vitamin D Milk

At Booth 259, Vitex Laboratories, Inc., will again serve visiting physicians and their friends with refreshing Vitex Vitamin D Milk, each quart of which will contain 400 U.S.P. units of vitamin D, extracted from cod liver oil by the Vitex process. This is the same milk which is sold to thousands of families in over 250 major cities of this country.

Will Serve Banana Milk Shake

Visitors are cordially invited to call at the United Fruit Company's Booth, 192, and sample a delicious ripe banana drink made from the fresh, fully ripe fruit and mixed with milk. The latest information, developed by research, will be available on the food value and uses of the banana.



Wisconsin Foundation Exhibit

The extensive educational work of the Wisconsin Alumni Research Foundation will be the basis of their exhibit in Booth 257. The Steenbock irradiation process and control of irradiated Vitamin D products to insure uniform Vitamin D potency will be demonstrated and described. The display will also include other recent scientific findings.



* Diagnostic Apparatus

See the A. B. C. Hemometre

In Booth 29 the American Medical Specialties Company, Inc., will present the A. B. C. Hemometre, a new instrument for taking the hemoglobin content of the blood. By employing an entirely new principle, a hemoglobin count can be taken with the instrument in a few minutes' time, without fuss or bother. The Hemometre is extremely simple to operate and remarkably accurate in results. All physicians are invited to call.

For Cardiac Diagnosis

Notable among the "Hindle" Electrocardiographs and other apparatus to be exhibited by Cambridge Instrument Company in Booth 126, will be the Electrocardiograph-Stethograph, which makes it possible to record the electrocardiogram and heart sounds simultaneously in the same record. The Cambridge Stethograph, a small portable instrument which amplifies heart sounds as an aid in auscultation and records them as well, will also be shown.

The Bio-Photometer

The Bio-photometer, a new clinical diagnostic instrument which makes it possible to detect even mild degrees of Vitamin A deficiency, will be shown at Booth 112 by Frober-Faybor Company. Representatives will demonstrate how easy it now is to test children and adults for Vitamin A deficiency and to measure response to Vitamin A therapy.

Will Show Stomach Camera

Gastro-Photol Laboratories will exhibit in Booth 230 the latest model of a camera for direct photography of the interior of the stomach. Actual photographs of the interior of the stomach, normal and pathological, will be on display. A motion picture illustrating the use of this ingenious instrument will also be shown.

Blood Chemistry Units

LaMotte blood chemistry units for the physician will be shown in Booth 210. The exhibit will be in charge of chemists who will be glad to go over any of the tests with physicians who might be interested. The Improved Kline Slide Test for syphilis will also be shown, along with other standard LaMotte diagnostic units for use in blood and urine tests.

Microscopes and Accessories

Various types of research and laboratory microscopes and accessories will be shown in Booth 89 by E. Leitz, Inc. Also on display will be the recently developed Universal Microscope and Photo-Micrographic Apparatus Panphot; the Tyndallometer, a new dust measuring device; and the well known Leica Camera, with a complete line of accessories especially adaptable for clinical photography and photography of gross pathological specimens.

Diagnostic Equipment

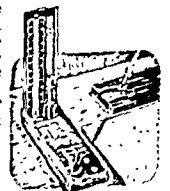
The latest Sanborn Company metabolism and electrocardiograph equipment will be shown in Booth 146. Interesting demonstrations will be made of the Sanborn Metabolism Tester, Model E-I-S, which now features a simple slide rule for rapid computation of the basal metabolic rate. Also the new Sanborn Cardiette, portable electrocardiograph, 1937 model, and the Sanborn Standard Electric-Portocardiograph, for hospital heart tests and cardiac research, will be exhibited.

Optical Instruments

The Spencer Lens Company will have an interesting display of binocular and monocular microscopes; paraffin and freezing microtomes; delineoscopes; bright line counting chambers; as well as popular accessories. This exhibit, Booth 10, will afford a splendid opportunity to examine the new dark field setup, both as to equipment and technic.

A New Tycos Instrument

You can inspect the new Tycos Mercuial Blood Pressure Instrument, along with the latest models in portable and desk style aneroid instruments of the Taylor Instrument Companies, in Booth 212. Their representatives will be glad to explain the liberal Tycos exchange plan.



To Show New Laryngoscope

At the Welch Allyn Booth, No. 28, will be exhibited a new Laryngoscope of the type used in securing films of the vocal cords shown at the annual meeting; also important developments in Otoscope lamps;

* List of Exhibitors

Firm Name	Aisle	Space No.
Duke Laboratories.....	D.....	183
DuPont Film Corp.....	J.....	16-17
Earnshaw Knitting Co.....	B.....	231
Eastman Kodak Co.....	H.....	79-80
Electro Surg. Inst. Co.....	C.....	211
Electro Therapy Prods.....	AA.....	256-E & 256-F
Emerson, J. H.....	J.....	14
Enochs Mfg. Co.....	A.....	113
Fischer & Co., H. G.....	A.....	249
Foley Mfg. Co., Inc.....	H.....	73
Foregger Co., Inc.....	L.....	51

Firm Name	Aisle	Space No.
Fougera & Co., E.....	D.....	168-169
Frober-Faybor Co.....	G.....	112
Gastro-Photol Labs.....	B.....	230
General Electric Co.....	I.....	60-61
General Elec. X-Ray Corp.....	L.....	36-37-38-39-40
General Foods.....	B.....	223-224
General Mills.....	Adj. Reg.	269
Gerber Products Co.....	A.....	247
Gevaert Co. of Amer.....	J.....	6
Gomco Surg. Mfg. Corp.....	F.....	139
Hackel, Joseph P.....	H.....	77

Firm Name	Aisle	Space No.
Hamilton Mfg. Co.....	H.....	74-75-76
Hanovia Chem. & Mfg. Co., J.....		33-34
Hansen's Lab., Inc., Chr.....	G, So. 1/2, Space 88	
Hawallan Pineapple Co., Adj. Reg.....		271
Heldbrink Co.....	B.....	232
Heinz Co., H. J.....	C.....	204
High Tension Corp.....	A.....	251-252
Hoerber, Inc., Paul H.....	C.....	206
Hoffmann-La Roche.....	H.....	63
Hospital Liquids, Inc.....	G.....	104
Hygeia.....	Adj. Reg.	266

a new offering of soft leather zipper carrying cases and new types of rectal sets with proximal illumination; and a complete line of other diagnostic instruments.

On Display at Zeiss Exhibit

Of special interest in Booth 185, of Carl Zeiss, Inc., will be the Pancretic Con-

denser, a complete unit which permits synchronising of condenser aperture with the respective aperture of the objective. Camera, the new Perimeter, and apparatus. Informable on the "invisible contact glasses."

College of Surgeons. Enlarged reproductions of the journal's pages will be turned automatically. phone voice features scope of its the world. tendence to advertisers. Booth 100.

* Medical Books

"Practitioners Library" on Display

Their entire standard line of medical works will be displayed by D. Appleton-Century Company in Booth 225. The "Practitioners Library of Medicine and Surgery," edited by Dr. George Blumer, will be on display, including the new twelfth volume, "Hygiene and Preventive Medicine." The third volume of the new "Postgraduate Surgery," "Legal Medicine and Toxicology," "Textbook of Diagnostic Roentgenology," "Diseases of the Nose and Throat," and other works will also be shown.

New Blakiston Books

In Booth 158 P. Blakiston's Son & Company will exhibit the following new volumes: Balme's "Relief of Pain"; Knudsen's "Oral Diagnosis"; "Punch and Scases"; Sheldon's "and Childhood"; Underhill's "Toxi-"; "Historical Notes in the 'Recent Ad-"; "Surgery," Bray's "Allergy," and Cameron's "Endocrinology."

F. A. Davis Exhibit

You will find at the F. A. Davis Company Booth, 170, many outstanding new books, including Troncoso's "Internal Diseases of the Eye and Atlas of Ophthalmoscopy"; Loewenberg's work on "Clinical Endocrin-"; "Urinalysis and Injection Treat-

ment," and the Piersol "Cyclopedia of Medicine."

Lea & Febiger Books

The following new works will be exhibited by Lea & Febiger in Booth 153: Atkinson's "The Ocular Fundus"; Brahdry & Kahn's "Trauma and Disease"; Davidoff & Dyke's "Normal Encephalogram"; Davis' "Neurological Surgery"; Levinson & MacFate's "Clinical Laboratory Diagnosis"; Matthe's "Chemical Procedures"; Rowe's "Clinical Allergy"; Saxl's "Pediatric Diets"; and many other noteworthy medical books.

New Thyroid Work

New books to be displayed by the J. B. Lippincott Company, Booths 151 and 152, will include Emerson's "A Textbook of Medicine"; Pfaunder and Schlossmann's "Diseases of Children"; McBride's "Disability Evaluation"; Herrmann's "Passive Vascular Exercises"; Peham and Amreich's "Operative Gynecology"; and Kirschner's "Operative Surgery." Also a new work, on "The Thyroid and Its Diseases," by Means, and "An Atlas of Hematology," by Dr. Roy R. Kracke, will be exhibited.

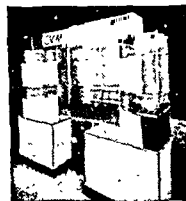
Macmillan Medical Works

Among the recently published Macmillan books to be exhibited are the new second edition of White's "Heart Disease," Levy's "Diseases of the Coronary Arteries and Cardiac Pain," Guedel's "Inhalation Anesthesia," Diethelm's "Treatment in Psychiatry," the new edition of Barclay's "The

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To Show Newer Publications

New publications of the Mosby Company which include



Mansfield's "Materia Medica, Toxicology and Pharmacognosy"; Hollender's "Physical Therapeutic Methods in Otolaryngology"; and Hirschman's "Synopsis of Ano-Rectal Diseases."

Loose-Leaf Medical Books

Thomas Nelson & Sons invite you to visit their exhibit in Booth 66. The Nelson "Loose-Leaf Medicine," "Loose-Leaf Surgery," the new publication, "Loose-Leaf Diagnostic Roentgenology" (many volumes in one), and the new semi-annual replacement pages, showing the latest advances in medicine and surgery, will be on display.

From the Oxford Press

Of particular interest in the Oxford University Press display of medical books, Booth 176, will be the Oxford "Loose-Leaf Medicine." Representatives will be on hand to show this collection of monographs by leading authorities and the method employed to keep it constantly up to date. Another standard work to be shown is the new sixth edition of "Applied Physiology," by Samson Wright.

New Pages for Old

In Booth 233 the full line of loose-leaf medical works published by W. F. Prior Company will be exhibited. Included will be Tice's "Practice of Medicine," Lewis' "Practice of Surgery," Mock, Pemberton and Coulter's "Principles and Practice of Physical Therapy," Davis' "Gynecology and Obstetrics," and the new "Practice of Pediatrics," by Brennemann.

Saunders Medical Publications

Important new books and new editions to be shown by W. B. Saunders Company, Booth 154, will be the rewritten Warbasse-Smyth's "Surgical Treatment"; the new (1937) "Mayo Clinic Volume"; Jackson's "The Lar"; "Preopera"; Gr; Tuft's "Cal Diag"; and Arte "Textbook"; and other

"Talking Book" on Exhibit

A "talking book" will constitute the exhibit of "Surgery, Gynecology and Obstetrics," official journal of the American

Outstanding New Books

In Booth 245 the exhibit of the William Wood & Company Division of the Williams & Wilkins Company will provide an excellent opportunity for personal examination of several outstanding new books of the year, including Kurzkrok's "Endocrines"; Best & Medical; al Neu-; itamin-; Diagno-; works.

A. M. A. Publications

Periodicals, pamphlets and reprints from the A. M. A. Press, as well as the American Medical Directory, Index Medicus and other books, will be found in Booth 265. Adjacent, in Booth 266, will be a colorful presentation of Hygeia, The Health Magazine. Representatives will welcome visitors and discuss the value of Hygeia to the physician.

* Miscellaneous

Aznoc's Employment Service

An experienced representative of Aznoc's National Physicians' Exchange will be on hand in Booth 172 to offer the services of this organization to medical men and hospital executives who are considering additions or changes in office or hospital personnel. Available applicants include physicians, nurses, dietitians, technicians, or other medical assistants. This service is free to employers. Persons seeking an appointment or contemplating a change in employment are also invited to call.

See the New Buicks

Buick—exhibiting for the first time at any A. M. A. Convention—will offer for inspection and approval of visiting physicians two beautiful Buick models. Those physicians who have not seen the latest Buick developments have a delightful treat in store. The Buick display and demonstration will be in the Corridor Lobby. There will be on hand a corps of ex-



The new and standard books for first hand examination.

* List of Exhibitors

Firm Name	Aisle	Space No.
Hysoun, Westcott & Dunning..	B.	239
Internat'l		
Internat'l		
Irradiated		
Johnson & Johnson.....	D.	179
Kelley-Koett Mfg. Co.....	B.	234-235-236-237
Kellogg Company.....	Adj. Reg.	270
Keystone View Co.....	AA.	256-K
Lakeside Labs, Inc.....	C.	201
LaMotte Chem. Prods.....	C.	210
Lea & Febiger.....	E.	153

Firm Name	Aisle	Space No.
Lederle Labs.....	G.	102
Lentz, Inc., E.....	G.	89
Lentz & Sons, Chas.....	G.	92-93
Lebel High Freq. Labs.....	H.	81
Liebel-Flarsheim Co.....	C.	219
Lilly & Co. E.....	E.	141-142-143-144
Linde Air Prods. Co.....	H.	69-70-71
Lippincott Co., J. B.....	E.	151-152
Little Mfg. Co.....	AA.	256-L
Luzier's, Inc.....	B.	229
M & R Diet. Labs.....	D.	186

Firm Name	Aisle	Space No.
MacGregor Inst. Co.....	B.	241
MacLett Labs.....	J.	7-8
Macmillan Co.....	C.	193
Mallinckrodt Chem. Wks.....	J.	24-25
Mallinck Chem. Co.....	H.	87
Mallinck Co.....	H.	82
Marcelle Labs.....	C.	197
Mattern Mfg. Co., F.....	Adj. Reg.	W. 1/2 of 267
McCaskey Rec. Co.....	J.	20
McIntire, Magee & Brown.....	L.	47
McIntosh Elec. Corp.....	G.	38



Checking over a new edition.

perienced demonstrators who will be glad to answer any questions concerning these stunning, new, beautiful Buicks.

New Elastic Stocking

Visitors to Booth 268, the Bauer & Black exhibit, will be interested in a demonstration of a new elastic stocking. The two-way stretch feature of the garment will be shown with a special machine which will stretch and re-stretch continuously for the duration. In addition to this will be an interesting plate line of surgical supplies.

Motion Picture Equipment

From Booth 27, Bell & Howell will provide official 16 mm. projection service and equipment supply for the Convention. Both sound and silent Filmo Projectors will be available at reasonable rental rates. The exhibit will feature the new Filmo 8 mm. Camera, and in contrast, the new semi-professional Filmo 70-F Camera with motor or hand-crank drive and 400' film magazine.



Clay-Adams Exhibit

Anatomical charts, models, skeletons, skulls and obstetrical phantoms and dolls will be shown by Clay-Adams Company in Booth 88. The exhibit will also include hemoglobin test apparatus, "Kosmoplast" ready-to-put-on dressing, "Gold Seal" hypodermic needles, small electric sterilizers and centrifuges, new duodenal tube and other specialties for doctor, surgeon and laboratory technician.

Skin Graft Dressing

The Perforated Form of the "Cilkloid" Surgical Dressing Tissue will be featured in Booth 3. Its use over a period of years has demonstrated its usefulness as a non-adherent dressing for skin grafts, and visiting doctors can examine it for this and other purposes. The Impervious Form of the Dressing will also be exhibited.



Kodachrome Color Film

Color photography of medical subjects as stills and 16 mm. motion pictures will be exhibited in all their vivid brilliance at Booths 79 and 80 of the Eastman Kodak Company. The method of exposing Kodachrome, the new color film, will be explained by experts. The newest line of Kodaks, Cine-Kodaks, and the Kodaslide projector will be on display, in addition to numerous photographic and radiographic examples of medical subjects.

G. E. Lamp Display

At Booths 60 and 61, the Incandescent Lamp Department of the General Electric Company will have meters continuously indicating the intensity of ultraviolet and light outdoors. By means of a miniature school room, the effect of variations of daylight upon the illumination in the class room will be demonstrated. Three-lit and I. E. S. Study Lamps, as well as ultraviolet and infrared equipment for use in the home and office, will be on display.

Normal Menstruation Study

An unusually complete study of normal menstruation will be exhibited in Booth 53 by International Cellucotton Products Company. The exhibit will feature a graphic presentation, in color, of the normal cycle of menstruation with its related endocrine factors. There will also be charts and graphs showing results of a six years study of 400 cases of normal menstrual loss between the ages of 12 and 48.

"One Writing" Record System

The McCaskey Register Company, in Booth 20, will call attention to their "One Writing" system, which offers the physician a convenience and saving due to the remarkable visibility and accessibility of individual record information. Every physician will be given an opportunity to see what four never failing assistants, working as one, will mean to him in profitable practice management.

Medical Opportunities

To those who seek medical personnel or new opportunities in the medical field, the Medical Bureau will offer the facilities of their organization in Booth 161. Here you may leave your request for any medical employee you may need—physician, dentist, hospital executive, graduate nurse, dietitian or technician—without charge for the service to employer.

Medical Case Histories

If you find record keeping an onerous task; if you are interested in a system that shows at a glance the case you want, how many calls you made and when, the patient's history, the developments, diagnosis and treatments, as well as the financial status of each case, spend some time in Booth 118 for the purpose of investigating the Medical Case History Bureau. All of the history forms are shown there as they are actually kept in their cabinets.

* Pharmaceuticals and Biologicals

"Council Accepted" Specialties

Abbott Laboratories will present a beautiful new assortment of a selected assortment of D. R. L. arsenicals, oils, pollen extracts, barbiturates, assorted ampoules, ephedrine and others are featured at the exhibit. A hearty welcome awaits you, and discussion of your clinical experiences with Abbott products will be most welcome.

Specialties by Calco

glu am
Calco
goumoux, and Crystal Violet Jelly-Calco, will be displayed in Booth 218, by the Calco Chemical Company, Inc. Their representatives will be pleased to direct the use of Urganin in the various cardiac conditions, and to explain the applications of all the other Calco



Professional Protection

The Medical Protective Company, which has concentrated upon legal liability problems of the medical profession for the past 38 years, will be represented at Booth 196. A representative will be glad to present their protection plan, to explain the peculiar relation of the doctor to the law which governs your practice, or to discuss any particular phase of professional liability in which you are especially interested.

Philip Morris Cigarettes

Philip Morris & Company, Ltd., Inc., will demonstrate the method by which Philip Morris cigarettes are made and in which diethylene glycol is used as the hygroscopic agent. According to tests, this method produces a cigarette which is mild and delightful and appreciated by smokers with sensitive throats. Booth 101.

New York Medical Exchange

You are invited to visit Booth 31, where the New York Medical Exchange offers its highly specialized placement service to the medical and allied professions, without cost to employer. Problems of reorganization, staff additions, appointments and changes of assignment can be discussed. From available history records of specialists in all the medical fields you may choose those candidates best suited to your needs.

Northwestern Mutual Life

Space to be occupied by the Medical Department of the Northwestern Mutual Life Insurance Company of Milwaukee will be used as a means of meeting and becoming better acquainted with the Company's medical examiners from all parts of the country. An invitation is being extended to all its medical examiners in attendance at the Convention to visit Booth 256-M, where a representative of the Medical Department will be present to greet them.

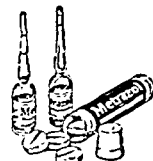
"Evenflo" Baby Nursing Unit

For the third time, the Pyramid Rubber Company will exhibit its "Evenflo" Baby Nursing Units, with valve air-balancing action which prevents vacuum and back pressure. The unit is quickly made ready for feeding and the unit sanitarily protects formula and nipple between feedings. An interesting demonstration will be given at the exhibit, to the left of the main door entrance.

products featured. Aminoacetic Acid (Glycine, Glycocol)-Calco, and various Medicinal Dyes will also be exhibited.

An Aid in the Emergency

At Booth 238, the use of Metrazol to overcome barbiturate or opiate poisoning, surgical shock, and asphyxia, can be discussed. Also the advantages of Dilaudid hydrochloride for pain relief and for cough sedation; Theocalcin, as a diuretic and myocardial stimulant. Other well-known medicinal chemicals exhibited by the Billhuber-Knoll Corporation include Euresol, Lenigallol, and Bromural.



Saftiflasks Demonstrated

Cutter Laboratories, in Booths 212 and 213, will feature their "Council Accepted" biologicals and allied intravenous special-

* List of Exhibitors

Firm Name	Aisle	Space No.
McKesson Appl. Co.	E	145
McKesson & Robbins	A	250
McNeill Labs.	C	208
Mead Johnson	J-F-A-1-2-127-263-264 and Room A	
Medical Bureau	E	161
Medical Case Hist. Bur.	F	118
Medical Protective Co.	C	196
McNeill's Food Co.	E	166
Mennen Co.	L	44
Merck & Co.	E	162-163-164

Firm Name	Aisle	Space No.
Merrell Co., Wm. S.	F	133
Meyrowitz Surg. Insts. Co.	D	184
Middlewest Instr. Co.	D	191
Mosby Co., C. V.	D	167
Mueller & Co., V.	E-K-1/2 155 and 156-157	
National Carbon Co.	H	69-70-71
National Drug Co.	C	205
Nelson & Sons, Thos.	H	66
Nelson's Milk Products	J	58
Nestle's Milk Products	J	31
New York Med. Exch.	J	

Firm Name	Aisle	Space No.
Northwestern Mut. Life	AA	256-M
Oxford Univ. Press	D	176
Parke, Davis	D	160-161-162
Patch Co., E. L.	H	72
Patterson Screen Co.	C	202
Peerless Labs.	J	4
Pelton & Crane Co.	H	84
Penn Surg. Mfg. Co.	C	207
Pet Milk Co.	G	107
Petrolagar Labs.	C-1	213-48
Pfau's Amer. Inst. Co.	F	132

ties. They will feature their prepared Dextrose Solutions in Saffflasks and the various mechanical improvements and modifications developed during the past year will be demonstrated by competent representatives. Of particular interest will be the Cutter antitoxin syringe.

Sodium Bicarbonate U. S. P.



Church & Dwight Company, Inc., who for 91 years have concentrated on producing pure sodium bicarbonate, will exhibit in Booth 131. Here they will show those venerable and well known products, Arm & Hammer and Cow Brand Bicarbonate of Soda. Representatives will give interesting data on soda products and their manufacture.

Pulvoids—Improved Tablets

The process by which Pulvoids, an improved form of tablet making, was originated in 1913 by the Drug Products Company, Inc., will be demonstrated at Booth 32. A complete price list will be available upon request.

For Diagnostic Help

E. Fougere & Company will offer for your attention, at Booths 168 and 169, the modern approach to diagnosis and treatment offered by Lipiodol radiology. How Lipiodol may often be utilized to obtain more conclusive evidence and visualize pathologic changes will be illustrated and fully described. Descriptive literature will be available.

Striking Display by "Roche"

Hoffman-La Roche, Inc., invites all members of the profession to its striking new display of "Roche" contributions to the cause of scientific medicine, in Booth 63. Here will be an opportunity for personal discussion with the President or heads of the Medical Division, Research Laboratories, and other departments. Particular attention is invited to that part of the exhibit reflecting the pioneer work done by "Roche" in the field of chemically pure crystalline vitamins.

Intravenous Solutions

Intravenous solutions in Filtrair Dispensers will be displayed in Booth 104 by Hospital Liquids, Inc. Capable representatives will be there to discuss the various problems of parenteral therapy. In addition to the regular hospital package, a physician's package, completely sterile and ready for use, will be shown.

Mercurochrome Exhibit

Hynson, Westcott & Dunning, Inc., will have an exhibit featuring Mercurochrome and various other pharmaceuticals of their manufacture. There will also be a display of some of the diagnostic apparatus and ampule solutions which have been developed in cooperation with physicians. As usual, competent representatives of the company will be in attendance to demonstrate the products and to answer questions. Literature and samples will be available to physicians. Booth 239.

House of Vitamins

IVC Corporation will "Council Accepted" Halibut Liver Oil with Vitamin D Concentrate in Neutral Oil—3 minims capsules. Complete information on all matters pertaining to Vitamins will be available for the physician. The Booth number is 256-J.

Ampoule Preparations

Their "Council Accepted" Ampoule preparations, particularly their ampoules of Dextrose (d Glucose) 50%, Sodium Cacodylate and Calcium Chloride, will be exhibited by Lakeside Laboratories, Inc., in Booth 201. Members of the research staff will be present to demonstrate the chemical, bacteriological and physiological methods used to insure the purity, sterility and safety.



Pneumonia Typing Explained

At Booth 102 Lederle Laboratories will feature two of their outstanding products: 1.—"Antipneumococcic Sera Lederle" for use with the Neufeld typing method in pneumonia therapy. 2.—"1 cc. Concentrated Solution Liver Extract Lederle" for intramuscular injection—in secondary and pernicious anemias. A staff lecturer will be on hand to discuss recent dramatic results of the typing method of pneumonia therapy and to illustrate how determination of "type" infection is made. Many other well-known biologicals and pharmaceuticals will be included.

Demonstrations by Lilly

Eli Lilly & Company will have a completely new display occupying Booths 141, 142, 143, and 144. It will feature, among other products, Protamine, Zinc & Iletin (Insulin, Lilly). There will be a continuous demonstration of the Urine Sugar Test Case, Sheftel, designed to give the physician an accurate, portable apparatus for bedside use. Also displayed will be liver products, ephedrine products, biologicals, "Sodium Amytal," "Merthiolate," Carbarsone, and Iletin.



Halibut Vitamin Products

McKesson & Robbins, Inc., of Bridgeport, will display, in Booth 250, a series of halibut liver oil products, accompanied by an exhibit which will indicate the effects and use of vitamins A and D in the treatment of conditions arising from a deficiency of either or both of these vitamins.



Information on Calcreose

At the Maltbie Chemical Company Booth there will be a display of Calcreose, original brand of Calcium Creosote, U. S. P. XI. Any questions you may desire to ask about this product will be answered gladly. You are cordially invited to visit Booth 87.

Cod Liver Oil Research

The Maltbie Company will demonstrate, in Booth 82, the various steps involved in the manufacture of Maltine with Cod Liver Oil, and will show evidence that the vitamin A value of cod liver oil is enhanced two-fold when administered as Maltine with Cod Liver Oil. Charts and illuminated photographs will show results of recent laboratory research on this subject.



A Special Feature by Merck

The Merck display of medicinal specialties, in Booths 162, 163 and 164, will feature long established products as well as some of the most recent chemotherapeutic developments. Among the latter may be mentioned Cebione—Cevitamic Acid Merck, Pure Crystalline Vitamin C. Among the former, Ichthyol is outstanding and needs no introduction. Although not used medicinally, a new scientific and variant.

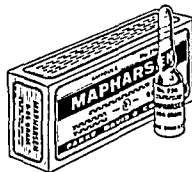
Hormodin "A"—a hormone-like plant growth substance which stimulates rapid root growth on plant cuttings—will be displayed and explained.

Six New Dioramas by Merrell

The Wm. S. Merrell Company will show for the first time in Atlantic City their recently constructed display unit and six new dioramas, which should prove both interesting and educational to every member of the Association. Be sure to see this exhibit (Booth 133) and also receive information about Diothane, Natural Sodium Salicylate, Fibrogen, Sperti Process Vio-sterol and other equally interesting medicinal products.

Parke-Davis Exhibit

A number of scientific accomplishments will be displayed by Parke, Davis & Company's staff of expert technical men in charge of Booths 180, 181, and 182. Products of special interest to the medical profession will be shown, including Mapharsen (a recent advance in antisyphilitic therapy), glandular products, including Adrenalin, also Meningococcus Antitoxin, and other biological products.



Sandoz Specialties

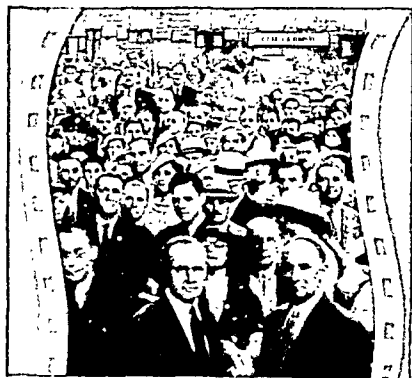
Interesting clinical reports describing the therapeutic advantages of Sandoz specialties may be obtained in Booth 173, where competent representatives will be in attendance. Products to be displayed are: "Gynergen" (Ergotamine Tartrate) for the dramatic relief of migraine and dependable uterine hemostasis; "Calglucon" chocolate flavored tablets, effervescent tablets and granules for oral calcium administration. Other "Council Accepted" preparations to be shown are "Scillaren" "Scillaren-B" and "Sandoptal."

Searle Pharmaceuticals

The rese G. D. Searle & Company Booth 121, a technical Accepted research products. Prominent among these items are Aminophyllin (Searle) and Aqueous Bismuth Sodium Tartrate. A capable staff of Searle representatives will be present, and invite all physicians to review their display and discuss with them any points of particular interest concerning Searle products.

Motion Pictures

Sharp & Dohme will have their new and attractive mahogany-finished display at



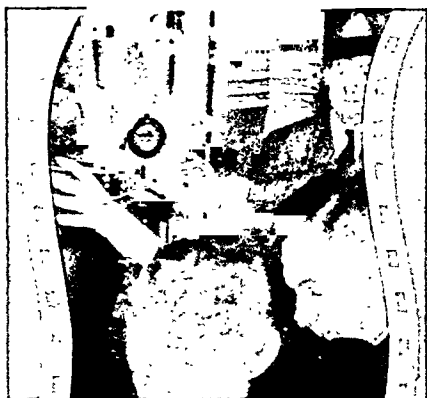
Visitors in Technical Exposition last year at Kansas City.

* List of Exhibitors

Firm Name	Alse	Space No.
Phila. Hosp. Sup. Co.	F	130
Phila. Surg. Inst. Co.	AA	256-C
Phillip Morris & Co.	G	101
Phillips Metallx Corp.	A	261
Picker X-Ray Corp.	D	54-55-56
Pilling & Son Co.	B	187-188
Prior Co., W. F.	A	233
Procter & Gamble Co.	B	256-D
Prometheus Elec. Corp.	F	120
Purlitan Comp. Gas Corp.	J	126
Pyramid Rubber Co.	S.W. cor. adj. Restaurant	

Firm Name	Alse	Space No.
Radium Chem. Co.	C	214
Radium Emanati		
Riedel-de Haen		
Rose Mfg. Co., E		
S. M. A. Corp.	F	122-123
Sanborn Co.	E	146
Sandoz Chem. Wks.	D	173
Saunders Co., W. B.	E	154 & So. 1/2
Scanlan-Morris Co.	L	41-42
Scherling Corp.	C	194-195
Schleffelin & Co.	J	5

Firm Name	Alse	Space No.
Scientific Sugars Co.	E	165
Searle & Co., G. D.	F	121
Selby Shoe Co.	F	121
Sharp & Dohme	G	95-96-97
Sight Light Corp.	AA	256-11
Sklar Mfg. Co., J.	A	258
Smith Co., Upsher	J	43
Smith, Kilne & French Labs., D.	J	169-190
Sonolone Corp.	H	68
Sorensen Co., Inc., C. M.	F	129
Spencer Corset Co.	H	244



Getting the "feel" of a big X-ray machine.

Booths 95, 96 and 97, where physicians may secure information relative to their extensive line of pharmaceuticals as well as Mulford biologicals. A major attraction will be miniature displays illustrating the processing of pharmaceutical and biological products. Motion pictures will also be in evidence.

Hospitality by Petrolagar

Two new convention displays, new literature and the usual air of hospitality await the doctors at Petrolagar Booths 213 and 48. You are especially invited to take advantage of the comfortable resting space provided for visiting doctors. Competent representatives will be pleased to supply information and literature concerning the use of Petrolagar in the specialized treatment of constipation.



"No Sales Resistance" Needed

At Booths 189 and 190, no sales resistance will be needed. Smith, Kline and French Laboratories, manufacturers of "Benzedrine" and Pentnucleotide, believe that many physicians dislike efforts to get them to register. The booth has therefore been arranged for self-service. The physician may help himself to literature from convenient literature-dispensers, without being urged to leave his name. Yet the attendants are always ready to answer questions and to give out samples of "Benzedrine Inhaler."

Squibb Products to Be Shown

Physicians attending the Meeting are cordially invited to visit the Squibb Exhibit in Booths 148, 149 and 150, where the complete line of Squibb vitamin, glandular, arsenical and biological products and specialties will be on display. A number of interesting new items will be featured, including Protamine Zinc Insulin. Well informed Squibb representatives will be on hand to welcome you and to furnish any information desired on the products displayed.

Facts on Nasal Congestion

At Booth 160 representatives of Frederick Stearns & Company will be glad to discuss recent advances in the treatment of diabetes mellitus. They will also welcome the opportunity to discuss the treatment of nasal congestion. An interesting display of Insulin and Neo-Synephrin will be presented. All physicians are invited to call at the Stearns Exhibit, where they will find competent representatives.

* List of Exhibitors

Firm Name	Aisle	Space No.
Spencer Lens Co.	J.	10
Squibb & Sons, E. R.	E.	148-149-150
Standard X-Ray Co.	I.	49-50
Stearns & Co., Fredk.	E.	160
Sterisol Ampoule Corp.	C.	202
Stokely Bros. & Co.	H.	85
Storz Inst. Co.	F.	124
Sun-Rayed Co.		
Surgical Pub. Co.	G.	106
Tampax Inc.		260
Taylor Instr. Cos.	C.	212

Riedel-de Haen Exhibit

Exhibit of Riedel-de Haen, Inc., will be primarily devoted to Decholin and Decholin-Sodium. The complicated steps in the purification and detoxification of Decholin will be demonstrated and copies of the brochure, "Biliary Tract Disturbances," will be available. If you are interested in the important subject of biliary tract disorders don't miss Booth 171. Also shown will be Pernoston, a safe and dependable hypnotic.



Sterisol Ampoules

The Sterisol Ampoule Corporation will offer, in Booth 202, their various sterile dextrose and saline solutions hermetically sealed in Pyrex brand glass ampoules. The convenience of having safe solutions always available in any desired strength for intravenous or clysis infusions is now generally recognized, and the Sterisol Ampoule is designed to make these administrations simple and secure.

Puritan Maid Products

The Puritan Compressed Gas Corporation, pioneer medical gas manufacturers, will exhibit in Booth 26. The firm manufactures the "Puritan Maid" brand of nitrous oxide, ethylene, oxygen, carbon dioxide, and carbon dioxide-oxygen mixtures, and are also distributors of leading makes of oxygen tents, nasal catheter outfits, and anesthetic apparatus.



Upsher Smith Products

In Booth 43, adjoining Lounge on Aisle I, Upsher Smith Company will feature Pyrethrum Ointment, a "Council Accepted" non-irritating scabies treatment, which has a pleasant odor and is clean and easy for patients to use. A cordial welcome will be extended to all physician visitors.

Cod Liver Oil Concentrates

Information covering the entire field of cod liver oil concentration, together with

clinical data and evidence concerning the efficacy of its Liquid, Tablet and Capsule concentrates, as well as of cod liver oil, per se, will be presented by White Laboratories, Inc., in Booth 226. Informative representatives, and descriptive literature, reprints and excerpts will further demonstrate cod liver oil efficacy, and will point out White Laboratories, Inc., contributions in the vitamin A and D field.

Motion Picture on Edema

Physicians visiting Booth 140, of the Winthrop Chemical Company, are assured of interesting information regarding its outstanding line of analgesics, anesthetics, antirachitics, antispasmodics, antisyphilitics, antigonorrheics, diagnostics, diuretics, hypnotics, sedatives, vasoconstrictors, vasodilators, etc. It is suggested that you inquire about the new motion picture, "Edema—Cardiac and Renal," which is loaned free to medical societies, hospital staffs and medical schools.



For Wound Dressing

Wallace & Tiernan Products, Inc., cordially invite you to visit Booth 30, where they will display Azochloramid, an odorless, stainless and relatively non-irritating chlorine germicide distinguished from other chlorine compounds by its exceptional ability, slow liberation of chlorine, ease of application and prolonged bactericidal action. Forms suitable for topical application to virtually all kinds of tissue will be shown and experienced staff members will be on hand.

Glucose and Digitalis Products

At Booths 221 and 222, John Wyeth & Brother will exhibit their ampoules glucose solution and digitalis products, together with many of their large line of U. S. P. and N. F. preparations. A cordial invitation is extended to physicians to visit these booths.



* Physical Therapy and X-Ray

New Contributions to X-Ray

In Booths 215 and 216 will be seen roentgenographic projection of plane sections of the human body with complete elimination of all posterior and anterior obstructions. These are made by means of the Planigraph, manufactured by the Adlanco X-Ray Corporation. The firm will also show a low-voltage X-ray unit for Chaulot Contact Therapy; the smallest shock and ray proof diagnostic X-ray unit, Heliosphere; and the Schliephake Ultra Short Wave unit, Ultratherm.

Short Wave Diathermy

Burdick will show in Booth 94 their latest developments in short wave equipment, distinguished by having a separate long wave circuit for electrosurgery. Other physical therapy equipment included in the exhibit will be a complete line of ultra-violet and infra-red lamps, suction-pressure equipment and low-voltage generators.



Three Types of X-Ray Films

Agfa Ansoco Corporation will exhibit Agfa High-Speed X-Ray Film for use in usual radiographic technique, Agfa Non-Screen Film for use in cardboard holders, and Agfa Direct Duplicating Film, which makes possible duplicate radiographs in

one photographic step. Agfa clinical photographic materials and equipment will also be on display in the same space. Booth 256-I.

Illuminated Instruments

Cameron Surgical Specialty Company will demonstrate in Booth 19 their latest developments in electrically lighted instruments for surgery and diagnosis. The Tele-Vaginalite will be included. Of special interest will be the new and inexpensive Cameron Cauterodyne for providing safe cutting, coagulation, desiccation and fulguration.

An Early De Forest Audion

"Great oaks from tiny acorns grow!" Lee De Forest Laboratories will exhibit in Booth 111 the 3 electrode vacuum tube with which Dr. Lee De Forest demonstrated to the Bell Telephone engineers his electron telephone relay. By means of it, the first transcontinental long distance telephone line was opened in January 1915. From this little tube has grown the powerful oscillator tube used in modern short wave tube diathermy emitters.

Drinker-Collins Respirator

How the care of severely paralyzed "polio" patients can be greatly improved by the Drinker-Collins Respirator will be demonstrated by the Warren E. Collins Company, Inc., in Booth 62. Another Inter-

(Continued on advertising page 80)

Firm Name	Aisle	Space No.
Thomas, Charles C.	G.	108
Tower Co.	J.	15
U. M. A., Inc.	G.	110
United Fruit Co.	D.	192
Vitamin Food Co. (Vegex, Inc.)	I.	57
Vitex Labs.	A.	259
Walk-Over Shoe Co. (Geo. E. Keith Co.)	H.	78
Wallace & Tiernan.	J.	30
Welch Allyn Co.	J.	28

Firm Name	Aisle	Space No.
Westinghouse X-Ray Co.	A.	254-255-256
White Labs., Inc.	B.	226
Winthrop Chem. Co.	F.	140
Wis. Alum. Res. Found.	A.	257
Woche & Son Co., Max.	G.	114
William Wood & Co.	A.	245
Wright & Co.	Adj. Rec.	270-A
Wyeth & Bro., John.	B.	221-222
Zells, Inc., Carl.	D.	185
Zimmer Mfg. Co.	D.	178

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - "Medic, Chicago"

Subscription price - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, MAY 8, 1937

THE ANNUAL SESSION

The last annual session of the American Medical Association held in Atlantic City was the greatest in attendance of any medical meeting ever held anywhere in the world. More than 8,000 physicians registered their presence, as well as thousands of exhibitors, wives of physicians and others. The illustrations published elsewhere in this issue of THE JOURNAL are an indication not only of this tremendous gathering but also of the extraordinary facilities which Atlantic City supplies to a convention of this character. The technical and scientific exhibits, as well as all the scientific sections, are comfortably housed in the immense auditorium that is a feature of the "Convention City." Moreover, the great hotels that front on the ten mile boardwalk along the ocean yield accommodations suitable to every purse and of exceptional quality.

Atlantic City makes available every type of facility necessary for combining a vacation with attendance at a meeting. Golf, fishing, motoring, sailing and all the innumerable amusements of the great piers, which extend far out into the ocean, are unparalleled in any other single city in the world. Finally, the easy accessibility of Atlantic City to great numbers of physicians forecasts another great session in that city. The special features provided for this year include not only a special session on the subject of the diagnosis, treatment and prevention of syphilis, a subject now prominent in the medical perspective, but also the first exhibition of the talking motion picture clinic on this subject, prepared jointly by the American Medical Association and the United States Public Health Service. Moreover, two great clinical sessions on a variety of subjects will be featured on Monday and Tuesday.

The announcements that have already been received of meetings of associated medical organizations, fraternities, alumni associations, editorial groups, historical societies and similar bodies reveal with certainty that the annual session of the American Medical Association has come to be the outstanding medical event each year in this country. The physician who fails to avail him-

self of the educational features offered by this meeting loses an invaluable opportunity of bringing himself abreast of medical progress and of hearing at first hand the leaders in many fields of investigation.

CALCIUM THERAPY IN DENTISTRY

Efforts to promote the use of compounds of calcium and phosphorus in medicine and in dentistry have been increasing. The representations seem to depend on the assumed deficiency of calcium and phosphorus in the diet and on the assertion that the general ingestion of calcium phosphate compounds is beneficial in overcoming conditions presumably due to what is glibly called calcium imbalance.

Because of the extensive promotion of these products to the dental profession, the Council on Dental Therapeutics, a body analogous to the Council on Pharmacy and Chemistry, has reviewed the functions, uses and actions of calcium in human physiology and nutrition.¹ The Council on Dental Therapeutics points out that the dentist is primarily interested in the following special aspects of calcium metabolism: 1. Are disorders of the teeth, notably dental caries, related to the dietary intake of calcium (and phosphorus)? 2. Is the development of sound teeth in utero dependent on a high intake of calcium during pregnancy? 3. Is there a calcium drain on the mother during pregnancy and lactation, and, if so, is this drain related to the carious process?

The interest of obstetricians, pediatricians and general practitioners in these questions is no less than that of dentists, for they are frequently asked similar questions. The dental council pointed out that there is no direct positive evidence from either the laboratory or the clinic that the addition of calcium and phosphorus compounds to an otherwise ample diet influences in any definite manner the incidence of dental decay in the child or in the adult, or that it promotes the development of noncarious teeth in utero, in infancy and during growth or in the adult; nor is there any sound evidence that a calcium drain during pregnancy and lactation is lessened by the addition of these compounds when the diet is well balanced.

The late Alfred F. Hess² concluded from a roentgenographic examination and chemical study of the teeth of infants from birth onward that: 1. Calcification must be regarded as a postnatal phenomenon. 2. At birth, only 0.5 Gm. of tricalcium phosphate has been laid down in the teeth of both jaws. 3. As far as the teeth of the infant are concerned, it cannot be of great moment whether throughout pregnancy a woman has a diet high in calcium and phosphorus. She is provided with a bounteous storehouse of these substances in the bony skeleton, from which, with the greatest facility and

1. Calcium and Phosphorus Compounds in Dentistry, J. Am. Dent. A. 23: 139 (Jan.) 1936.

2. Hess, A. F.; Lewis, J. M., and Roman, Benjamin: Dent. Cosmos, 74: 1053 (Nov.) 1932.

without the slightest harm to the prospective mother, the 0.5 Gm. required for the denture of the fetus can be withdrawn. 4. The postnatal period is of great significance as regards calcium and phosphorus requirements of the teeth. 5. Little is gained, so far as fetal dentition is concerned, by increasing the calcium and phosphorus intake of the expectant mother.

Macy³ and her collaborators adduced evidence to show that a large intake of vitamin D during the period of pregnancy was of greater importance than added supplies of calcium and phosphorus to a diet.

While there is some dispute as to the exact importance of vitamin D or factors simulating it, the Council on Dental Therapeutics has resolved the problem for dentists by pointing out that cod liver oil has a favorable influence on the absorption and subsequent deposition of calcium and phosphorus in the bones and in the teeth. Consequently cod liver oil is considered among the medicinal foods which, because of their vitamin content, apparently have a beneficial effect on the development of teeth and aid in prophylaxis against dental caries. Accordingly, it lists in its book of accepted dental remedies several brands of cod liver oil and compounds related to it.

Because of the assertions made by certain promoters of so-called organically combined calcium or phosphorus compounds, the Council reminded its readers of the statement of the late Lafayette B. Mendel, made years ago, that the once debated question of superiority of calcium and phosphorus and iron when furnished in some organic form or combination no longer excites interest. This is as real today as when it was first said.

After a careful review of the critical evidence available, the Council concluded that:

1. All the calcium and phosphorus requirements for average needs, including pregnancy and growth, may be suitably obtained by means of an adequate diet containing not only calcium and phosphorus compounds but also other necessary factors, such as caloric, protein and other mineral and vitamin requirements.

2. There is no carefully controlled evidence that the addition of calcium and phosphorus compounds, whether inorganic or organic, promote retention of these elements and hence freedom from dental diseases, except in known cases of deficiency. Where this occurs, milk serves as an excellent source of calcium and phosphorus in a readily assimilable form.

3. There is no evidence that the ingestion of combinations of calcium and phosphorus in addition to diets adequate in these elements promotes the development of sound teeth in the human fetus. The calcification of the teeth is a postnatal event.

The Council emphasized the following statements: "The reparative treatment of dental caries, based on the principle of local susceptibility, depending on dental conformation and natural hygiene, is invariably success-

ful when properly practiced, in that dental caries does not recur under or at the margins of properly treated and filled cavities. Hygienic measures as now applied are probably of definite but limited value in combating caries. Empirical prophylaxis by regulation of the diet of children is distinctly effective, and, at least until the problem becomes more fully understood, deserves more universal adoption."

POTENTIAL HAZARDS OF THE DIAGNOSTIC USE OF THORIUM DIOXIDE

Several years ago, colloidal preparations of thorium dioxide were introduced into medicine for use in radiography.¹ Thorium is opaque to roentgen rays and throws a deep shadow in roentgenograms. It was found that thorium dioxide sol could be introduced into body cavities and even into the blood stream with little immediate deleterious effect. When injected into a vein, the particles are picked up by the reticulo-endothelial system, especially in the liver and spleen, where the material remains indefinitely; the compound thus serves to make these organs less penetrable to the x-rays. Other structures can be visualized by direct injection of thorium dioxide sol into their cavities; these include the cerebral ventricles, the urinary tract, the uterus and fallopian tubes and various accessible blood vessels.

The immediate utility of colloidal thorium dioxide preparations has tended to obscure an important characteristic of this substance: its radioactivity. Over four years ago the Council on Pharmacy and Chemistry¹ pointed out the possible deleterious effects of such a radioactive substance and declined to accept one of these preparations for intravenous injection. The hazard is particularly great when thorium dioxide sol is so administered that the material remains in body tissues for long periods. Because patients who have received injections of this compound have shown no apparent ill effects over a period of several years, some clinicians have concluded that the preparation is safe and have begun to employ it with less caution. It is important to remember, however, that degradation products of thorium emit alpha rays more penetrating than those of the radium series and that this ray is about 10,000 times as toxic to tissues as the gamma ray which is used therapeutically; the alpha rays are filtered out in the therapeutic use of radium and their effects are seen only when the material comes into direct contact with tissues as on ingestion or injection. An amount commonly used for intravenous injection of one of the commercial preparations of thorium dioxide has an alpha ray activity equivalent to that of from 1.5 to 3 micrograms of radium. Surely physicians would hesitate to inject the latter quantity of radium into a patient's vein!

Experience with radioactive intoxications indicates that as much as ten or fifteen years (and perhaps

3. Macy, Icie G.; Hunscher, Helen A.; McCosh, Sylvia S., and Nims, Betty: J. Biol. Chem. 56: 59 (March) 1930.

1. The literature is reviewed in a Preliminary Report of the Council on Pharmacy and Chemistry: Thorotrast, J. A. M. A. 99: 2183 (Dec. 24) 1932.

longer) may elapse between ingestion of the active material and the onset of gross tissue changes. The fact that patients who have been injected with thorium dioxide have shown no detectable toxic effects from the substance over a period of a few years is not satisfactory ground for complacency as to ultimate results. Recent reports, on the contrary, emphasize the proclivity of this substance to produce necrosis and malignant change² in tissues with which it remains in contact.

The danger of the internal use of long-lived radioactive substances has been amply demonstrated in past experience. Investigators versed in this matter have repeatedly pointed out that these materials should never be so administered as to remain in the human body for long periods.

Current Comment

THE MOTION PICTURE ON SYPHILIS

In connection with recent emphasis on syphilis as a public health problem, the American Medical Association, by action of its Board of Trustees, and the United States Public Health Service have jointly engaged in the production of a clinic on syphilis in a talking motion picture. The picture is now being made by the Burton Holmes organization in Chicago; it is expected that it will be available for a first showing at the annual session of the American Medical Association to be held in Atlantic City. After a preliminary announcement in the picture by Surgeon General Thomas Parran and President Charles Gordon Heyd, the diagnosis of syphilis is covered by Dr. John H. Stokes of Philadelphia. Latent syphilis is discussed by Dr. Paul A. O'Leary of Rochester, Minn., the treatment of syphilis by Dr. Harold N. Cole of Cleveland, late syphilis by Dr. Joseph E. Moore of Baltimore, syphilis in pregnancy by Dr. James R. McCord of Atlanta, Ga., syphilis in the child by Dr. Philip C. Jeans of Iowa City, and the public health aspects of syphilis by Dr. Raymond A. Vonderlehr of the United States Public Health Service. The technic of taking blood for a Wassermann test, spinal fluid examination and intravenous injection are shown. The systematic technic of treatment is revealed not only on patients but also diagrammatically. It is hoped to provide with the picture a reprint of the main points brought out so that those who attend may carry away a permanent reference to the significant information. When the picture is completed, copies will be made available to state and county medical societies, hospital conferences and other assemblages of physicians.

GARLIC VAPOR AS A BACTERICIDAL AGENT

One of the curiosities of recent bacteriologic research is confirmation of the popular superstition that onion and garlic vapors are efficient bactericidal agents. Vollrath, Walton and Lindegren¹ of the University of Southern California have provisionally identified the volatile bactericide in garlic as allyl aldehyde. This is not one of the substances giving garlic its characteristic odor. The California bacteriologists found that when an agar plate is exposed to the vapors of freshly crushed garlic for thirty minutes a sufficient amount of volatile bactericide is absorbed by the agar to kill all bacteria in a heavy suspension of *Escherichia coli* streaked on the surfaces immediately after exposure. In order to identify this volatile antiseptic they synthesized and tested separately or in combination the various volatile components known or believed to be present in garlic. Methyl sulfide, ethyl sulfide, ethyl disulfide and allyl disulfide, the other oils giving the characteristic odor, were found to be ineffective. Allyl alcohol was also ineffective, but allyl aldehyde ("acrolein") had a volatile bactericidal index equal to that of crushed garlic. In vitro tests showed that a 1:10,000 aqueous solution of "acrolein" would sterilize a *Bacillus coli* suspension within forty-eight hours and that in this dilution the aldehyde is equally effective in the presence of proteinaceous material (egg white). In the absence of egg white, "acrolein" is an effective bactericide in dilutions as high as 1:10,000,000. Lewin³ had previously shown that "acrolein" is relatively non-toxic for mammals, the lethal dose being in the neighborhood of 0.25 Gm. per kilogram of body weight.

BRITTLE BONES AND BLUE SCLERAS

Occasionally, clinicians or investigators encounter a rare or unusual clinical entity which, because of its infrequent occurrence, is worthy of detailed examination. The so-called inborn errors of metabolism may be considered among these extraordinary conditions. These comparatively rare clinical entities frequently have a hereditary aspect. This is true of the syndrome of brittle bones and blue scleras. The pathology and hereditary features of this disease have been comprehensively treated by Key¹ and by Bell.² Recently a report of another case, including a family history of five generations, has been reported in detail.³ A white girl, aged 10 years, was concerned and data were gathered on fifty-one other members of the same family. The family tree shows the appearance of characteristic signs of the syndrome in twenty-seven of the fifty-one family members. The disease follows the mendelian laws of inheritance, appearing as a dominant character. Four distinct features characterize this clinical entity: blue scleras, fragile bones, a tendency to deafness and marked relaxation of the ligaments. The authors pre-

2. Footnote 1. Shute, Evan, and Davis, M. E.: Histologic Changes in Rabbits and in Dogs Following Intravenous Injection of Thorium Preparations, *Arch. Path.* **15**: 27 (Jan.) 1933. Flinn, F. B.: Radium Salts and Emanation, *Am. J. Roentgenol.* **31**: 830 (June) 1934. Alexander, L.; Jung, T. S., and Lyman, R. S.: Colloidal Thorium Dioxide, Its Use in Intracranial Diagnosis and Its Fate on Direct Injection Into the Brain and the Ventricles, *Arch. Neurol. & Psychiat.* **32**: 1143 (Dec.) 1934. Naegeli, T., and Lauche, E.: Histologische und röntgenologische Befunde an den inneren Organen 5 Jahre nach intravenöser Einspritzung von Thoriumdioxidsol beim Hunde, *Klin. Wchnschr.* **15**: 436 (March 28) 1936. Gye, W. E.: The Production of Sarcoma by Thorium Dioxide Sol, *London Letter, J. A. M. A.* **108**: 403 (Jan. 30) 1937. (A complete bibliography on toxicity of thorium dioxide cannot be included owing to space limitations.)

1. Vollrath, R. E.; Walton, Lucile, and Lindegren, C. C.: *Proc. Soc. Exper. Biol. & Med.* **36**: 55 (Feb.) 1937.

2. *Escherichia*.

3. Lewin, L.: *Arch. f. exper. Path. u. Pharmacol.* **43**: 1351, 1900.

1. Key, J. A.: Brittle Bones and Blue Sclera, *Arch. Surg.* **13**: 523 (Oct.) 1926.

2. Bell, J., in Pearson, Karl: *Treasury of Human Inheritance*, London, Cambridge University Press, 1928, vol. 2, pt. 3, sect. 24.

3. Hills, R. G., and McLanahan, Samuel: Brittle Bones and Blue Scleras in Five Generations, *Arch. Int. Med.* **50**: 41 (Jan.) 1937.

sent a detailed consideration of the etiology, pathologic changes and treatment in the case under observation. Although the rarity of the disease may make it a clinical curiosity, this ample account is a valuable contribution to the few available data regarding this syndrome.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

State Medical Meeting and Election.—Dr. Sidney J. Wolfermann, Fort Smith, was chosen president-elect of the Arkansas Medical Society at its annual meeting in Little Rock, April 12-14, and Dr. Oscar J. T. Johnston, Batesville, was inducted into the presidency. Vice presidents are Drs. Herbert Fay H. Jones, Little Rock; Joseph F. John, Eureka Springs, and Logan C. McVay, Marion. Drs. William R. Brooksher, Fort Smith, and Royal J. Calcote, Little Rock, were reelected secretary and treasurer respectively. The next annual meeting will be held in Texarkana. Included on the program were the following guest speakers:

Dr. Charles Gordon Heyd, New York, President, American Medical Association, Recognition and Treatment of Peritonitis.
Dr. Charles B. S. Evans, Los Angeles, Sterility.
Dr. Byrl R. Kirklin, Rochester, Minn., Cholecystography as an Aid to Diagnosis.
Dr. Theodore A. Watters, New Orleans, Anxiety States.
Dr. Harry W. Lyman, St. Louis, Lateral Sinus Thrombosis.
Dr. Roy R. Kracke, Emory University, Ga., Role of Drugs in the Production of Agranulocytosis.
Dr. Charles H. Eyermann, St. Louis, The Applicability of Allergy to General Practice.
Dr. Harry Wilkins, Oklahoma City, Craniocerebral Injuries.
Dr. Joseph Hoy Sanford, St. Louis, What the Practitioner Should Know About Urology.

The woman's auxiliary held its thirteenth annual meeting during the session of the state medical association.

CALIFORNIA

The Abortion Syndicate.—The California State Board of Medical Examiners reports that the California licenses of the following physicians have been revoked for their part in the Pacific Coast "abortion ring": Jesse C. Ross, Los Angeles, who graduated from the St. Louis College of Physicians and Surgeons in 1910; Alfred Henry Valentine St. John, Los Angeles, who is a licentiate of the Royal College of Physicians of London and a member of the Royal College of Surgeons of England, 1908; James H. Beggs, Glendale, who graduated from the College of Physicians and Surgeons, Los Angeles, in 1917, and George Eliot Watts, Los Angeles, who graduated from the University of Oregon Medical School, Portland, in 1895. According to the newspapers the abortion ring was organized so that its physicians rotated in the various cities at frequent intervals to avoid becoming well known. The syndicate was alleged to net \$1,000,000 annually. The "Medical Acceptance Corporation," an outgrowth of the syndicate's operations, was patterned after automobile finance agencies, so that part payments with rates of interest appropriate under the circumstances might be secured for some of the patients.

DISTRICT OF COLUMBIA

Course in Ophthalmology.—George Washington University School of Medicine, Washington, will sponsor a course in ophthalmology, May 31-June 5. In addition to the members of the department of ophthalmology, the following guests will participate: Drs. Clyde A. Clapp, Baltimore; Arthur J. Bedell, Albany, N. Y.; Sylvester Judd Beach, Portland, Maine; Conrad Berens, New York; Harry S. Gradle, Chicago; Sanford R. Gifford, Chicago; Le Grand H. Hardy, New York; Patrick Chalmers Jameson, Brooklyn; Edward Jackson, Denver; Daniel B. Kirby, New York; Samuel Hanford McKee, Montreal, Que., Canada; Walter B. Lancaster, Boston; Edmund B. Spaeth, Philadelphia, and Robert Von der Heydt, Chicago. One afternoon will be spent at the Army Medical Center and another afternoon at the National Bureau of Standards, where allied problems in the field of physics and optics will be discussed.

ILLINOIS

State Medical Meeting at Peoria, May 18-20.—The eighty-seventh annual meeting of the Illinois State Medical Society will be held in Peoria, May 18-20, with headquarters at the Pere Marquette and under the presidency of Dr. Rolland L. Green, Peoria. The oration in medicine will be delivered Tuesday afternoon by Dr. Virgil E. Simpson, Louisville, Ky., on "Abdominal Visceral Pain: A Physiological and Clinical Consideration," and the oration in surgery by Dr. Vilray P. Blair, St. Louis, Wednesday morning, May 19, on "Early Treatment of Injuries of the Face and Jaws." Other out-of-state speakers will include Drs. Robert J. Masters, Indianapolis, on "Lesson Learned from Blind School Survey," and French K. Hansel, St. Louis, "Allergy of the Upper Respiratory Tract and Its Relation to Other Manifestations." The program will also include symposiums on acute infectious diseases and pneumonia, the latter to be presented at the pediatricians' meeting Tuesday morning. Others on the program will include:

Dr. M. Herbert Barker, Chicago, Dangers of Rapid Diuresis in the Cardioresenal Vascular Patient.
Drs. Italo F. Volini and William W. Shapiro, Chicago, Malaria with Special Reference to Narcotism.
Dr. Perry J. Melnick, Decatur, Pulmonary Changes in Rheumatic Fever.
Dr. Robert E. L. Gunning, Galesburg, Bile Peritonitis with Case Report.
Dr. Milton H. Kronenberg, Chicago, Industrial Hygiene—Its Historical Development and the Modern Campaign.

The annual secretaries' conference will be held Tuesday morning with the following speakers:

Dr. Green, Retrospect and Prospect.
Dr. Harold M. Canup, Monmouth, Correlation of Secretarial Duties in the State Medical Society.
Mr. John Beineman, Oak Hill, chairman of board of supervisors of Peoria County, How May the County Medical Society Aid in Township Relief?
Dr. John R. Neal, Springfield, State Medicine.
Dr. Robert H. Hayes, Chicago, Socialized Medicine.
Miss Jean McArthur, Chicago, What the Education Committee Does for County Medical Societies.

Entertainment Tuesday evening includes the stag dinner, with the Peoria Medical Society acting as host, and the veterans' service committee dinner. At the annual president's dinner, in honor of Dr. Green, Wednesday evening, all living past presidents of the society will be guests. The woman's auxiliary will have its headquarters at the Jefferson Hotel. The Central States Society of Industrial Medicine and Surgery will convene in annual session Tuesday and speakers at a joint session with the surgical section of the state medical society will include Dr. Reginald M. Carter, Green Bay, Wis., on "Pellegrini-Stieda's Disease" and Mr. Edward W. Rawlins, Chicago, "Malpractice in Relation to Industrial Surgery."

Chicago

Dr. Erich Hoffmann Lectures on Syphilis.—Dr. Erich Hoffmann, professor of dermatology and syphilology, University of Bonn, Bonn, Germany, co-discoverer of *Spirochaeta pallida*, will lecture on syphilis at the University of Illinois College of Medicine, May 11, from 4 to 5 p. m., in room 423. Members of the Chicago Medical Society are invited.

Dr. Wakerlin Appointed Professor of Physiology.—Dr. George E. Wakerlin, professor of pharmacology and physiology, University of Louisville School of Medicine, Louisville, Ky., has been appointed professor and head of the department of physiology at the University of Illinois College of Medicine, effective September 1. Dr. Wakerlin will succeed Dr. Maurice B. Visscher, who resigned to accept a position at the University of Minnesota School of Medicine as professor and head of the department of physiologic chemistry in September 1936. Dr. Wakerlin, who is 35 years of age, graduated from Rush Medical College in 1929.

Annual Orthopedic Meeting.—The fourteenth annual meeting of the Chicago Orthopaedic Society will be an all day session, May 14. Two memorial plaques to Jane Neil, for many years head of the Spalding School for Crippled Children, will be presented, one to the school and another to the Janell Shop, at ceremonies to be held at the school in the morning. The presentation of the first will be made by Dr. John L. Porter and the speech of acceptance by Miss Thecla Doniat, present head of the school. Dr. Edward L. Ryerson will present the second plaque, and Mrs. Morris Fishbein will deliver the speech of acceptance. "Personal Recollections of Jane Neil" will be offered by Mrs. Rose Rudolph, a former teacher. Miss Neil died Oct. 29, 1932. A clinic will be held at Cook County Hospital from 1:30 to 2:30 p. m. by Drs. Sumner L. Koch and Michael L. Mason on "Infections and Disabilities of the Hand." In the evening there will be a dinner at the Palmer House with Dr. Albert H. Freiberg, professor of ortho-

pedic surgery, University of Cincinnati College of Medicine, Cincinnati, as toastmaster. Speakers at the dinner meeting will be:

Dr. Lewis J. Pollock, Diagnosis of Peripheral Nerve Injuries.
Dr. Alfred W. Adson, Rochester, Minn., Surgical Treatment of Peripheral Nerve Injuries.
Dr. Willis C. Campbell, Memphis, Tenn., Treatment of Recent, Ununited and Malunited Fractures of the Shaft of the Femur.
Dr. Freiberg, Orthopedic Surgery in the Light of Its Evolution.

KANSAS

Mental Hygiene Conference.—Bert A. Nash, Ph.D., professor of psychology, University of Kansas, was reelected president of the Kansas Society for Mental Hygiene at its annual conference in Wichita, April 9-10. Other officers are Dr. Ralph M. Fellows, superintendent, Osawatomie State Hospital, vice president; Dr. Joseph Stanley Reifsnider, Wichita, treasurer, and Wilbert J. Mueller, Wichita, president, Sedgwick County Society of Mental Hygiene, executive secretary. The speakers at the session included Dr. George Douglas Gordon Campbell, Chicago; Chauncey M. Louttit, Ph.D., Indianapolis, and Dr. Henry H. Turner, Oklahoma City.

LOUISIANA

New Director of Tuberculosis Control.—Dr. Reuben A. Brown has been appointed director of tuberculosis control of the state department of health. A native of Texas, Dr. Brown graduated from University of Pennsylvania School of Medicine in 1928. He has been associated with the Alabama department since 1932, except for a few months when he was identified with the Georgia State Sanatorium at Alto.

Dr. Nelson to Head Department of Pharmacology.—Dr. Erwin E. Nelson, professor of pharmacology, University of Michigan Medical School, Ann Arbor, has been appointed head of the department of pharmacology at Tulane University of Louisiana School of Medicine, New Orleans, succeeding Dr. John T. Halsey, who is retiring at the close of the present session, it is reported. Dr. Nelson obtained the degree of doctor of philosophy at the University of Missouri in 1920 and the medical degree at the University of Michigan in 1926. He was assistant in zoology at Missouri from 1913 to 1916 and assistant professor of pharmacology at Michigan from 1919 to 1927, when he was named associate professor. He was pharmacologist to the U. S. Department of Agriculture from 1923 to 1924 and again in 1927, and in 1931 consultant to the Food and Drug Administration. In January 1935, under a leave of absence from the University of Michigan, Dr. Nelson was designated principal pharmacologist in charge of the drug division of the Food and Drug Administration (THE JOURNAL, Feb. 23, 1935, p. 663). Following his organization of the division he returned to Michigan, Oct. 1, 1936, as professor of pharmacology. Dr. Halsey first became associated with Tulane in 1901 as lecturer in pharmacology. He was professor of materia medica and therapeutics from 1904 to 1912, when he became professor of pharmacology and therapeutics. He has been professor of pharmacology since 1927. He was born in Elizabeth, N. J., in 1870, and graduated from Columbia University College of Physicians and Surgeons, New York, in 1893.

MARYLAND

Dr. Adolf Meyer Honored.—Dr. Adolf Meyer, Henry Phipps professor and director of the department of psychiatry, Johns Hopkins University School of Medicine, Baltimore, was guest of honor at a meeting at Johns Hopkins Hospital, April 16-17. The meeting celebrated his completion of forty-four years of psychiatric work in the United States and of twenty-seven years as head of the department of psychiatry at the medical school. Papers were presented by Drs. Oskar Diethelm, New York; Louis Hausman, New York; Edward J. Kempf, Wading River, N. Y.; Leslie Hohman, Baltimore; Frederic Wertham, New York, and Frederick H. Allen, Philadelphia. The program also included a reunion of former staff members of the Henry Phipps Psychiatric Clinic, which is now entering its twenty-fifth year. As a special tribute to the occasion, the *Archives of Neurology and Psychiatry* for April was dedicated to Dr. Meyer, who is a member of the editorial board. Born near Zurich, Switzerland, Dr. Meyer took his medical degree at the University of Zurich Faculty of Medicine in 1892. He served as honorary fellow at the University of Chicago and later as docent in neurology from 1892 to 1895. During the ensuing years until 1910, when he became affiliated with Johns Hopkins, he was associated with the Kankakee (Ill.) State Hospital; Worcester (Mass.) Insane Hospital;

Clark University; Pathological Institute, New York State Hospitals, and Cornell University Medical College. In 1908 Dr. Meyer was appointed professor of psychiatry at Johns Hopkins but did not actually take up his duties there until 1910. The Phipps Clinic was built under his supervision during the period 1911-1913. He has been president of several scientific societies, including the American Neurological Association, American Psychiatric Association, New York Psychiatric Society and American Psychopathological Association.

MICHIGAN

Institute on Child Health.—The ninth annual child health institute sponsored by the J. L. Hudson Company, Detroit, was held March 8-13. Members of the Wayne County Medical Society participated in the program:

Dr. Harold C. Mack, Modern Maternity Care and Its Problems.
Dr. Russell W. Alles, Maternity—A Few Facts and Fallacies.
Dr. Clarence H. Eisman, Safeguarding Your Baby's Health.
Dr. Donald J. Barnes, The Feeding and Management of Your Baby.
Dr. Henry A. Luce, The Mental Health of the Parent at Forty.

Other speakers included Drs. Thurman B. Rice, Indianapolis, on "The Problems of Adolescence"; William E. Blatz, Toronto, Canada, and Allan R. Dafoe, Callander, Ont. The woman's auxiliary to the county medical society acted as hostesses during one day of the institute.

Society News.—At a meeting of the West Side Medical Society in Detroit, April 1, the speakers included Drs. John E. Gleason on "Malignant Exophthalmos in Exophthalmic Goiter" and Roger S. Siddall, "Care of the Postpartum Cervix—Its Relation to Malignancy."—Dr. Derrick T. Vail Jr., Cincinnati, discussed "Ocular Aspects of Unusual Pituitary Disorders" before the Wayne County Medical Society, Detroit, April 5. The society was addressed, April 19, by Thomas B. Fletcher, M.B., associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore, on the endocrine glands.—Dr. Wilber E. Post, Chicago, discussed "Recent Advances in Diagnosis and Treatment of Medical Kidney Disease" before the Kalamazoo Academy of Medicine, March 16.—The Upper Peninsula Medical Society will hold its annual meeting in Houghton, August 19-20.—Dr. Albert D. Ruedemann, Cleveland, discussed "Headache and Head Pain" before the Bay County Medical Society at Frankenmuth, March 10.—Dr. Willard Van Hazel, Chicago, discussed empyema before the Muskegon County Medical Society in Muskegon, March 25.

MISSISSIPPI

State Medical Meeting at Meridian, May 11-13.—The seventieth annual session of the Mississippi State Medical Association will be held at the Convention Hall, Meridian, May 11-13, under the presidency of Dr. Harvey F. Garrison, Jackson. Out-of-state speakers include:

Dr. Joseph Brennemann, Chicago, The Acute Abdomen in Children.
Dr. Paul Holinger, Chicago, Diagnosis and Treatment of Diseases of the Esophagus.
Dr. Walter C. Alvarez, Rochester, Minn., Helpful Hints in the Diagnosis of Gastro-Intestinal Diseases.
Drs. Seale Harris and Seale Harris Jr., Birmingham, Ala., Diagnosis, Dietary Management and Treatment of Gastric and Duodenal Ulcers by the General Practitioner.
Dr. Murdock S. Eguen, Atlanta, Ga., Bronchoscopy as an Aid to Diagnosis.
Dr. Willis C. Campbell, Memphis, Tenn., Present Status of Fractures of the Neck of the Femur.
Dr. Daniel C. Elkin, Atlanta, Thyroidectomy: Factors Influencing Mortality.
Dr. James B. Costen, St. Louis, Summary of the Neuralgias and Ear Symptoms Associated with the Mandibular Joint.
Dr. Raymond A. Vonderlehr, Washington, D. C., The Private Physician's Part in the Control of Syphilis.
Dr. Hiram W. Kostmayer, New Orleans, Postgraduate Medical Education.
Dr. Virgil L. Payne, Pine Bluff, Ark., The Modern Concept of Sinus Surgery versus the Idea Once a Sinus Always a Sinus.

Round table discussions will be led by Dr. Eguen on "Diagnosis of Bronchoscopy and Esophagoscopy" and by Dr. Costen on "The Sluders Syndrome and Its Causes." Dr. William D. Haggard, Nashville, Tenn., will present the Ewing Fox Howard Oration, Tuesday evening, on "What Can Be Done to Cure Cancer?" The fourteenth annual meeting of the woman's auxiliary will be held during the two days. The eighth annual session of the Mississippi State Hospital Association will be held Monday morning May 10.

MISSOURI

St. Louis Clinics.—The annual graduate course and clinical conference of the St. Louis Clinics will be held in St. Louis, May 24-29. Lectures, demonstrations and clinics have been arranged with special reference to the requirements of the general practitioner. Further information may be obtained from the St. Louis Clinics, 3839 Lindell Boulevard, St. Louis.

Executive Secretary for Jackson County.—Mr. Floyd Kenneth Helsby has been appointed to the newly created post of executive secretary of the Jackson County Medical Society. He has been for several years associated with General Mills, Inc., where he was engaged in sales and traffic accounting and sales promotional work. The position of executive secretary of the society has heretofore been on a part time basis.

Public Health Meeting.—The Missouri Public Health Association held its annual meeting at the Kentwood Arms Hotel in Springfield, April 29-30. Speakers included:

- Joseph C. Willett, St. Louis, D.V.M., Certification of Private, Clinical and Public Health Laboratories.
- Dr. Oliver C. Wenger, U. S. Public Health Service, St. Louis, Venereal Disease Program.
- Dr. Joseph D. James, Springfield, Maternal and Infant Welfare.
- Dr. Winfield K. Sharp Jr., New Orleans, regional consultant, U. S. Public Health Service, The Next Step in the Social Security Program as It Relates to Public Health in Missouri.
- Dr. Ellis Fischel, St. Louis, The Cancer Problem in Missouri and How to Meet It.

At the annual banquet Friday evening, Dr. Lynn M. Garner, Tusculumbia, among other speakers, delivered his presidential address.

NEBRASKA

Society News.—Drs. Charles F. Geschickter, Baltimore, and Francis L. Simonds, Omaha, addressed the Omaha-Douglas County Medical Society, Omaha, April 13, on "Chronic Cystic Mastitis and Tumors of the Breast" and "Low Back Pain Due to Herniation or Rupture of the Inner Vertebral Disk Into the Spinal Canal" respectively.—At a meeting of the Northeast Nebraska Medical Society in Wayne, March 11, the speakers were Drs. John Buis, Pender, on "Arsenic Poisoning Traced to Flour"; Frederick W. Niehaus, Omaha, "Coronary Disease," and Rollin Russell Best, Omaha, "Practical Aspects of Lesions of the Colon and Rectum."

State Medical Meeting at Omaha May 10-13.—The annual meeting of the Nebraska State Medical Association will be held in Omaha May 10-13 at the Hotel Paxton. The guest speakers will include:

- Dr. Richard H. Jaffé, Chicago, Diffuse Hepatitis.
- Dr. James R. Reinberger, Memphis, Tenn., The Treatment of Pyelitis as a Complication of Pregnancy.
- Dr. Edgar J. Huenekens, Minneapolis, Breast versus Artificial Feeding.
- Dr. Richard H. Overholt, Boston, Primary Carcinoma of the Lung.
- Dr. Charles Gordon Heyd, New York, President, American Medical Association, Diagnostic Interpretation of Jaundice.
- Dr. Clarence M. Hyland, Los Angeles, The Convalescent Serum Center and Its Value to the Community.
- Dr. Theodore F. Riggs, Pierre, S. D., The Prone and Right Lateral Positions for Gravity Drainage in Perforated Appendicitis.

Drs. Huenekens, Reinberger and Hyland will present a symposium on maternal and child health at the opening meeting Tuesday morning. Dr. Jaffé and Dr. Overholt will be the speakers in a symposium on cancer Tuesday evening and the film "Fight Cancer with Knowledge" will be shown. In a symposium on traumatic surgery Thursday afternoon the guest speakers will be Drs. William R. Cubbins and Harry E. Mock, Chicago. At a luncheon Wednesday Dr. Heyd will speak on "The Spirit of Organized Medicine"; he will also address the woman's auxiliary on "The Woman's Auxiliary and Organized Medicine." There will be a round table luncheon Thursday with Drs. Riggs, Cubbins and Mock as the speakers on traumatism and bone infection. The annual golf tournament will take place Monday May 10 at the Omaha Field Club and a trap shoot has been arranged at the Ak-Sar-Ben Field.

NEW HAMPSHIRE

State Medical Meeting at Manchester.—The one hundred and forty-sixth annual meeting of the New Hampshire Medical Society will be held in Manchester, May 18-19, at the Hotel Carpenter. The program announces the following guest speakers:

- Dr. Ralph E. McDonnell, New Haven, Conn., The Problem of Allergy in Diseases of the Skin.
- Dr. Warren T. Vaughan, Richmond, Va., Recent Advances in the Study of Food Allergy.
- Dr. Charles Gordon Heyd, New York, President of the American Medical Association, Differential Diagnosis of Jaundice.
- Dr. Anton J. Carlson, Chicago, Facts and Fallacies of Organotherapy.
- Dr. Fuller Albright, Boston, Medical Aspects of the Renal Stone Problem.
- Dr. Emanuel Ross Mintz, Boston, The Insidiousness of Certain Cancers of the Urinary Organs.
- Dr. Clyde L. Deming, New Haven, Conn., Treatment of Pyogenic Cystitis.
- Dr. James Dellinger Barney, Boston, Transurethral Prostatic Resection versus Prostatectomy.

At the annual banquet a "fifty year gold medal" will be presented to Dr. Nathaniel H. Scott, Wolfeboro, marking fifty years' membership in the society, and Dr. Henry O. Smith,

Hudson, will receive a silver medal for fifty years of medical practice. Speakers at the banquet will be Governor Francis P. Murphy, Dr. Frank E. Kittredge, Nashua, president of the society, and Dr. Heyd; Dr. Raymond H. Marcotte, Nashua, is chairman.

NEW JERSEY

Unlicensed Practitioners Convicted.—The New Jersey State Board of Medical Examiners recently reported the following activities since the beginning of the year in the prosecution and conviction of unlicensed practitioners of medicine:

Isabel B. Turner, Englewood, pleaded guilty January 14 in the Englewood District Court to a charge of practicing medicine without a license and paid the penalty.

May Lee Clonts, Asbury Park, was found guilty January 20 of practicing medicine without a license and paid the penalty.

Richard Miller, Newark, a naturopath, pleaded guilty February 15 to a charge of practicing without a license.

Stanley J. Bayorek, Irvington, a chiropractor, pleaded guilty February 16 to a charge of practicing medicine without a license.

NEW MEXICO

A Separate State Board of Health.—In accordance with a law enacted at the recent session of the state legislature, a separate board of public health has been appointed, with Dr. Eugene W. Fiske, Santa Fe, as president and Mr. E. P. Moore as secretary. Other members are Dr. Eugene P. Simms, Alamogordo, Dr. Meldrum K. Wylder, Albuquerque, and Mrs. Tobias Espinosa, Espanola, wife of a physician. The law forbids the board to make rules that prohibit any member of the healing arts from signing death certificates. Therefore it is now legal for a chiropractor to sign death certificates, the health department points out.

NEW YORK

Personal.—Dr. Rafael Ernest Lopez, Crestwood, a native of Venezuela who has lived in New York since 1923, has been appointed minister of education in Venezuela, according to the *New York Times*.—Dr. James C. Walsh, superintendent of the Schenectady County Tuberculosis Hospital, Schenectady, has resigned to become superintendent of the Nassau County Sanatorium, Farmingdale. He was to assume the new position April 15.

Changes in State Health Department.—Drs. Archibald S. Dean, Buffalo, and Frank W. Laidlaw, Middletown, have been permanently appointed district health directors on the staff of the state department of health. Dr. Dean has been health officer in charge of Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming counties; Dr. Laidlaw of Orange, Rockland, Sullivan, Ulster and Westchester counties. Both will continue their present positions and will have supervision of health activities in other jurisdictions as well. Dr. Cleland A. Sargent, recently in charge of a syphilis control program in Buffalo, has been appointed a district health officer.

New York City

Personal.—The medical staff of Beth Israel Hospital gave a dinner at the hospital April 25 in honor of Drs. Emil Altman and Ervin Torok, who have announced their retirement from the active staff after many years of service. Both have been appointed to the consulting staff.—Dr. William Seaman Bainbridge has been decorated by the king of Italy with the insignia of Commander of the Order of Saints Mauritius and Lazarus.

City Needs Beds for Tuberculosis Patients.—A minimum of 2,500 more beds for tuberculosis patients in New York is urgently needed, a hospital survey just completed under the direction of Dr. Haven Emerson has revealed. The survey report is now in process of publication. In 1936, there were 4,586 deaths from tuberculosis in New York, 215 more than in 1935. The most liberal provision among large cities in the United States is two beds for each death from tuberculosis in the year, Dr. Emerson pointed out, and the least allowance, one bed for each annual death. New York's tuberculosis hospitals had a normal capacity of 5,184 and the average census during the year was 5,425. An increase of 2,500 beds would give the city a ratio of 1.7 beds per annual death, compared with 2.3 for Detroit, 2 for Milwaukee, 2.1 for Buffalo, and 2.1 for Seattle. The 5,184 beds are in twenty-three hospitals, ten municipal and thirteen voluntary. More than 17,000 patients are admitted to these institutions in a year and spend an average of 111 days in the hospital. Eighty-three per cent of these patients are in the advanced or far advanced stage and fully a fourth of them die in the hospitals. Dr. Emerson said that the aggregate average census year in and year out is not less than 102 per cent of capacity. There are at least as many

more tuberculosis patients in their homes as there are patients in the hospitals. The borough of Manhattan is the most serious challenge. In 1921 its death rate was 130 per hundred thousand when that of the city was 102, and in 1936 it was 121 when that of the city was 62. In the other boroughs the rate has fallen nearly 50 per cent, but in Manhattan only 7 per cent. Dr. Emerson said that, although Negroes make up only 5 per cent of the population of the city, 15 per cent of the tuberculous patients are Negroes and 25 per cent of the deaths occur among them. Among Puerto Ricans the death rate is six times as high as in native white persons.

OHIO

Graduate Course at University of Cincinnati.—A graduate course in otology and rhinology for surgeons specializing in otolaryngology will be offered at the University of Cincinnati College of Medicine May 24 to June 4. Members of the faculty and Dr. Max Halle, New York, will give the instruction. Twenty-five physicians can be accommodated.

Sixtieth Year of Obstetric Society.—The Cincinnati Obstetrical Society celebrated its sixtieth anniversary at a banquet March 18, with Dr. James M. Pierce as toastmaster. Dr. Arthur G. King reviewed the society's history; Drs. Edwin W. Mitchell, a member for fifty-two years, and James W. Rowe, a member for thirty-two years, also contributed reminiscences. Entertainment arranged by Dr. William J. Graf concluded the program. Dr. Gilbert Mombach is president of the society and Dr. Edwin W. Enz, secretary.

Society News.—A symposium on arthritis formed the program of the Sixth District Medical Society in Akron, March 24. The speakers were Drs. Frederick A. Smith and Edward L. Voke, Akron, and William A. McConkey, Canton. Drs. John H. J. Upham, President-Elect of the American Medical Association; John B. Alcorn, president-elect of the Ohio State Medical Association; Herbert M. Platter, secretary of the State Medical Board of Ohio, and Jonathan Forman, editor of the *Ohio State Medical Journal*, all of Columbus, were special guests.—Dr. William F. Braasch, Rochester, Minn., addressed the Toledo Academy of Medicine, March 5, on "Recent Experiences with Ammonium Therapy in Treatment of Urinary Infections."—Dr. Irvin Abell, Louisville, Ky., addressed the Montgomery County Medical Society, Dayton, March 5, on acute conditions in the abdomen.

OKLAHOMA

State Medical Meeting at Tulsa.—The forty-fifth annual session of the Oklahoma State Medical Association will be held in Tulsa May 10-12, at the Mayo Hotel. The guests of honor who will address special sessions are:

Dr. Olin West, Secretary and General Manager, American Medical Association, Chicago, Organized Medicine.
Dr. Charles A. Elliott, Chicago, Management of Cardiovascular Disease; Management of Hepatic Disease.
Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., Syphilis Control.
Dr. James S. Speed, Memphis, Tenn., Present Status of Fractures of the Neck of the Femur; Fractures of the Forearm.
Dr. Elliott will also address the section on general medicine on "Management of Edema" and Dr. Millard F. Arbuckle, St. Louis, will be the guest of the section on eye, ear, nose and throat, speaking on "Diagnosis of Nonopaque Foreign Body in the Lung," and Dr. Joseph V. Van Cleve, Wichita, Kan., of the section on dermatology and radiology, speaking on "Lymphogranuloma Inguinale." Among Oklahoma physicians on the program are:

Dr. Bert F. Keltz, Oklahoma City, The Use of Protamine Insulin.
Dr. Ray M. Balyeat, Oklahoma City, Food Allergy with Special Reference to the Diagnostic Value of the Leukopenic Index.
Dr. David L. Edwards, Tulsa, Ocular Muscle Imbalance Following Head Injuries.
Dr. John R. Cotterall, Henryetta, The Use of Hydrochloric Acid in the Treatment of Asthma in Children.
Dr. Frederick Redding Hood, Oklahoma City, Cardiovascular Syphilis.
Dr. Curt O. von Wedel, Oklahoma City, Revamping the So-Called Unattractive Nose.
Dr. Laile G. Neal, Ponca City, Prevalence of Syphilis in Obstetric Practice.
Dr. Gertrude S. Nielsen, Oklahoma City, Abortion—A National Health Problem.

Clinics will be held at Tulsa hospitals Tuesday and Wednesday mornings. The president's reception, honoring Dr. Samuel A. McKeel, Ada, the incoming president, will be Tuesday evening. The Oklahoma Pediatric Society will meet Monday, May 10, with Dr. Ethel C. Dunham of the Children's Bureau, Washington, D. C., and Dr. Speed as guest speakers.

PENNSYLVANIA

Westmoreland County Clinic.—The Westmoreland County Medical Society held its fifteenth annual clinic at the Westmoreland Hospital, Chambersburg, April 22. Drs. Ambrose L. Lockwood, Toronto, Ont., and Hobart A. Reimann, Philadelphia, conducted clinics in the afternoon. At the morning session the following speakers were heard:

Dr. Robert L. Anderson, Pittsburgh, The Urologic Tract in Children.
Dr. Frederick M. Jacob, Pittsburgh, Recent Developments, Diagnosis and Treatment of Various Skin Conditions.
Dr. Joseph P. Replegle, Johnstown, A Common Undiagnosed Injury of the Shoulder Girdle.
Dr. John B. McMurray, Washington, Allergic Manifestations in the Upper Respiratory Tract.
Dr. Ralph P. Beatty, Uniontown, Urologic Disease with Gastro-Intestinal Manifestation.
Dr. Gervase F. Nealon, Latrobe, Injection Treatment of Hemorrhoids.
Dr. Maxwell Lick, Erie, president of the Medical Society of the State of Pennsylvania, was the speaker at a banquet in the evening at the Greensburg Country Club.

Philadelphia

Dr. Riesman Honored.—Dr. David Riesman was guest of honor at a dinner on his seventieth birthday, March 25, at the Bellevue-Stratford. Dr. Russell S. Boles was toastmaster and the speakers included Josiah Penniman, LL.D., provost of the University of Pennsylvania; Drs. William Gerry Morgan, Washington, D. C.; Henry A. Christian, Boston; Lewis A. Conner, New York; Alfred Stengel, and Wilmer Krusen. Dr. Stanley E. Harris announced that friends of Dr. Riesman had made possible the publication of a volume of his selected writings to celebrate his birthday. Dr. Thomas Fitz-Hugh Jr. presented to Dr. Riesman an engraved plate bearing the names of his former and present assistants. About 250 attended the dinner. Dr. Riesman is emeritus professor of clinical medicine and professor of the history of medicine at the University of Pennsylvania School of Medicine and professor of clinical medicine in the Graduate School of Medicine.

Pittsburgh

Society News.—The Pittsburgh Slit Lamp Society has changed its name to the Ophthalmological Society of the University of Pittsburgh.—Dr. John A. Toomey, Cleveland, addressed the Pittsburgh Pediatric Society, April 15, on "Differential Diagnosis Between Epidemic Meningitis and Other Forms of Meningeal Irritations."

Personal.—Dr. John E. Gorrell, superintendent of the Falk Clinic of the University of Pittsburgh since 1934, has resigned to become medical director of Blodgett Memorial Hospital, Grand Rapids, Mich. Before going to Pittsburgh, Dr. Gorrell was assistant to the superintendent of the University of Chicago Clinics. He graduated from Northwestern University Medical School, Chicago, in 1930.

RHODE ISLAND

Public Lectures.—During March the following lectures open to the public were presented under the auspices of the Rhode Island Medical Society at the Medical Library Building, Providence:

March 7, Drs. Herman C. Pitts and James A. McCann, Cancer—Facts and Fancies.
March 14, Drs. Charles S. Christie, West Warwick, and Daniel V. Troppoli, Headache—Medical and Surgical Aspects.
March 21, Drs. Charles F. Gormly, How to Grow Old Gracefully, and Henry L. C. Weyler, Why Poison Yourself—The Nostrum Evil.
March 28, Drs. Alfred L. Potter and David R. Brodsky, Modern Trends in Obstetrics.

SOUTH CAROLINA

State Medical Election.—Dr. James R. DesPortes, Fort Mill, was chosen president-elect of the South Carolina Medical Association at the annual meeting in Columbia, April 13-15. Dr. Julius H. Taylor, Columbia, was installed as president and Dr. Leonidas M. Stokes, Waterboro, was elected vice president. Dr. Edgar A. Hines, Seneca, continues as secretary. Next year's meeting will be at Myrtle Beach.

UTAH

Society News.—Drs. Ralph C. Pendleton and Reed Harrow, Salt Lake City, addressed the Cache Valley Medical Society in Logan recently on "Intestinal Obstruction" and "Subarachnoid Hemorrhage" respectively.—Dr. Rosco G. Leland, director, Bureau of Medical Economics, American Medical Association, Chicago, addressed the Salt Lake County Medical Society recently on medical economics, and Dr. Arthur E. Smith, Los Angeles, on "Reconstructive Plastic and Oral Surgery."—Dr. Lyman L. Daines, Salt Lake City, addressed

the Utah County Medical Society, Provo, March 10, on "Acid-Fast Bacteria."—Dr. Leland R. Cowan, Salt Lake City, was the guest speaker at the March meeting of the Weber County Medical Society, on roentgen therapy.

WASHINGTON

Personal.—Dr. Alfred E. Eyres, recently on the staff of the health department of Seattle, has been appointed health officer of Walla Walla and Walla Walla County.—Dr. Harry C. Watkins, Hoquiam, has been appointed health officer of Grays Harbor County.—Dr. Mary E. K. Turner has been appointed campus physician at Washington State College, Pullman.

GENERAL

Syracuse Alumni Meeting.—Alumni of Syracuse University School of Medicine, Syracuse, N. Y., will meet for their annual dinner Wednesday June 9 in Atlantic City, N. J., during the annual session of the American Medical Association. Dr. J. G. Fred Hiss, 505 State Tower Building, Syracuse, is arranging the dinner.

Memorial to Dr. Bigelow.—Plans are under way to establish a memorial to the late Dr. George H. Bigelow, health commissioner of Boston and director of the Massachusetts General Hospital, Boston. A committee has been appointed composed of Dr. Henry D. Chadwick, chairman; Dr. Clarence L. Scamman, Dr. Charles F. Wilinsky, vice chairmen, and Frank Kiernan, secretary. Tentative plans have been made for a George H. Bigelow Memorial Lecture which would be presented annually. Funds will soon be solicited and definite steps taken to present the lecture.

Meeting on Industrial Medicine.—The annual meeting of the Central States Society of Industrial Medicine and Surgery will be held in Peoria, Ill., May 18. The speakers will include:

- Dr. Darwin Kirby, Champaign, Ill., Treatment of Wounds.
- Dr. Harry A. Olin, Chicago, Injuries to the Intervertebral Disk—Roentgen Study.
- Dr. John B. Moore, Benton, Ill., The Economic Aspect of Abdominal Drainage.
- Dr. Philip H. Kreuscher, Chicago, Medical Problems of the Industrial Commission.

American Psychiatric Association.—The ninety-third annual meeting of the American Psychiatric Association will be held in Pittsburgh, May 10-14, at the William Penn Hotel. There will be special section meetings devoted to convulsive disorders, forensic psychiatry, child psychiatry, pathology of the brain, mental deficiency and the hypoglycemic treatment. There will also be joint sessions with the American Psychopathological Association and the American Psychoanalytic Association. Dr. Charles Macfie Campbell, Boston, is president of the association.

Changes in Status in Licensure.—The State Board of Medical Examiners of Florida announces that the licenses of the following have been revoked for narcotic violations:

Drs. Raymond O. Cheney, Daytona Beach; James F. Curry, Dunnellon, and Charles C. Gollinger, Daytona Beach.

The Montana Board of Medical Examiners recently took the following action:

Dr. James E. K. Free, Joplin, license revoked for conviction of the unlawful sale of drugs.

At a meeting of the State Medical Board of Ohio in Columbus January 5, the following actions were taken:

License of Dr. Charles R. Buck, Cincinnati, suspended until July 1, 1938, for violation of the Harrison Narcotic Act.

License of Dr. Robert I. McPhail, Arcadia, suspended for one year for violation of the narcotic act.

License of Dr. Ralph B. Brown, Belle Center, suspended until October 1, for violation of the narcotic act.

The West Virginia Public Health Council at a meeting March 2 took the following action:

License of Dr. Clyde H. Scott, Huntington, revoked for conviction of a felony.

License of Dr. Elias Benjamin Thompson, Williamson, for conviction of narcotic violation.

CANADA

Personal.—Dr. Jonathan C. Meakins, Montreal, has gone to Australia, where he will deliver a series of lectures at the invitation of the graduate committee in medicine of the University of Sydney, New South Wales.—Dr. Ian MacLaren Thompson, professor of anatomy, University of California Medical School, Berkeley, has been appointed professor of anatomy in the University of Manitoba Faculty of Medicine, Winnipeg.

Rural Health Conservation Contest.—The Canadian Public Health Association has arranged to conduct a public health conservation contest for rural areas with full time

health service, in cooperation with the American Public Health Association, which has carried on such contests in the United States for several years. The project in both countries is financed by a grant from the W. K. Kellogg Foundation. A fact-finding schedule taken principally from the appraisal form published by the American association will be used and field service will be furnished from the full time staff of the American association. The first contest will be held in the spring of 1938. Dr. Albert Grant Fleming, Montreal, is chairman of the committee and Dr. John T. Phair, Toronto, secretary.

FOREIGN

Medical Meetings.—The fifth International Hospital Congress will be held in Paris July 5-12. Among the speakers will be Dr. Malcolm T. MacEachern, Chicago; Mr. Homer Wickenden, president of the United Hospital Fund, New York, and Dr. Clarence M. Hincks, Toronto and New York, director of the National Committee for Mental Hygiene and the Canadian Committee for Mental Hygiene.—The "International Medical Days of Paris" will be held June 26-30. The subject to be discussed is the influence of hormones in biology, clinical medicine and therapeutics. The secretary general is Dr. Pierre Godlewski, 18 rue de Verneuil, Paris.—The annual "Journées médicales" will be held in Brussels June 19-23, under the presidency of Prof. Albert P. Dustin, rector of the University of Brussels. Dr. Georges Duhamel, Paris, will lecture at the opening session. Information may be obtained from the secretary general, Dr. René Beckers, 141 rue Belliard, Brussels.—The seventh English-Speaking Conference on Maternity and Child Welfare will be held in the Great Hall, British Medical Association, Tavistock Square, London, W. C. 1, June 1-3.—Paris laryngologists are organizing a congress of laryngologists to be held July 13 in conjunction with an "International Congress of Singing" at the Paris Exposition. Dr. L. Labarraque, 78 rue de Miromesnil, is in charge of arrangements.

Government Services

Hygienist Named to Department of Agriculture

Dr. Harry S. Bernton, professor of hygiene, Georgetown University School of Medicine, Washington, D. C., has been appointed clinical specialist in allergy in the bureau of chemistry and soils of the U. S. Department of Agriculture. Dr. Bernton will participate in a research project concerning the chemical nature of allergens, planned by the department, according to the *Medical Annals of the District of Columbia*.

Statistical Activities in Children's Bureau Reorganized

Mr. Robert J. Myers, Chicago, in the past four years director of research and chief statistician of the Illinois Emergency Employment Commission and of the Illinois Works Progress Administration, has been made director of the division of statistical research of the Children's Bureau of the Department of Labor. This division is a consolidation of three former statistical units in the bureau.

Opening for Associate Physicist (Electro-Encephalography)

The U. S. Civil Service Commission announces an open competitive examination to fill the position of associate physicist (electro-encephalography) in the U. S. Public Health Service. The salary for the successful applicant will be \$3,200 a year, which is subject to 3.5 per cent deduction toward a retirement annuity, and the duties will be to design, construct, repair and carry on research work on apparatus, to measure the electric potential of the brain, and to perform research work in the field of bio-electrical phenomena. Applications must be on file with the civil service commission at Washington, D. C., not later than May 20 for those coming from Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming and May 17 for applications coming from any other state. Application forms may be obtained from the secretary, Board of U. S. Civil Service Examiners, at any first class post office, from the civil service commission, Washington, D. C., or from the civil service district office at any of the following cities: Atlanta, Boston, Chicago, Cincinnati, Denver, New Orleans, New York, Philadelphia, Seattle, St. Louis, St. Paul, San Francisco and Honolulu.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 10, 1937.

Birth Control

The problem of local authorities and birth control has been under discussion for some time. Many have wished to provide facilities by which poor mothers could obtain advice but were unable to do so until 1931, when the Ministry of Health issued a memorandum pointing out that three courses were open to them: 1. Advice could be given to married women attending child and maternity welfare centers when further pregnancies would be detrimental to health. 2. Birth control clinics for this limited purpose could be established under the powers existing for the care of expectant and nursing mothers. 3. Under the public health acts, gynecologic clinics could be established for women in need of advice, and contraceptive advice could be given there to married women attending in whom pregnancy would be detrimental to health. However, these provisions were not considered sufficient by some, and in February the minister of health received a deputation organized by the National Birth Control Association, which pointed out the inadequacy of the present provisions and the limited use made of their powers by local authorities. The deputation predicted that increased provision would lead to a reduction not only in maternal morbidity and mortality but also in criminal abortion. They urged the minister to encourage the local authorities to establish gynecologic clinics in which birth control might take its proper place as part of the general care of women. In reply the minister pointed out the limitations imposed by parliament both on him and on the local authorities, stating that any alteration of policy would have to receive parliamentary approval. He contemplated an extension of postpartum clinics, where facilities would be available for the medical examination and treatment of women who had recently been confined. Birth control advice could be given there to any woman in whom pregnancy would be detrimental to health, but he considered that it should be given in a separate session. The establishment of postpartum clinics would doubtless reveal the need in many areas for gynecologic clinics, where this advice also could be given.

Physical Training Bill

As shown in previous letters, the closely connected subjects of diet and physical training of the public are now in the forefront of politics, and another one—the imminent fall of population due to the declining birth rate—is beginning to attract public attention. In the House of Commons Mr. Oliver Stanley, president of the Board of Education, moved the second reading of the physical training and recreation bill, which establishes a national advisory council, which, in conjunction with local bodies, will provide physical training for the people. The chairman of the council will be Sir Henry Pelham, permanent secretary to the Board of Education. A national college is to be set up for the training of instructors. Mr. Stanley said that in the last few years more publicity had been given to physical training in Germany and Italy, which might or might not be militaristic, but it was the democratic states Sweden and Czechoslovakia that first set an example to Europe in this training. He thought we should draw valuable lessons from their systems, which had no element of compulsion, but at the same time we would not ignore the developments that had taken place in the last twenty or thirty years in our own country. We had not any less enthusiasm for physical exercises, but, while they concentrated on the training and development of the body of the individual, we had concentrated on games and the team spirit. This had the danger that in a

highly urbanized state the participant tended to degenerate into the spectator. We did not want to substitute physical training for games but to supplement them with it. The "keep fit" slogan was one of the best ever invented. What was not so widely known was the remedial effect of physical training on some of those minor, and indeed some of the major, ills to which a highly civilized and industrialized community was liable. The habits of our civilization did result in certain physical defects. The machinery necessary to ensure that the school child should come to physical training with a well nourished body was now provided. The scheme was directed not only to physical training but also to recreation. The modern industrial trend was to shorten working hours. The masses of the people had greater leisure than ever at any time in our history. This leisure required something more than football matches and cinemas. The government scheme would not confine assistance to activities of the body but would include activities of the mind. Bertrand Russell had said "To be able to fill leisure intelligently is the last product of civilization."

Varicocele in the Female

At the North of England Obstetrical and Gynecological Society Prof. Fletcher Shaw reported six cases of varicocele in the female, a condition of which the textbooks do not give a satisfactory account. His attention was first directed to it in 1921 by the late W. E. Fothergill, and at first he was skeptical about the essential nature of a complaint that could be recognized only when the patient was in the upright position. But in 1923 he had three cases in one month. An unmarried woman, aged 26, was curetted by him in 1922 and underwent laparotomy in 1923 for suspected chronic salpingitis. But he found a mass of veins in the left broad ligament, which he ligatured and excised. A year later severe right-sided abdominal pain necessitated a second laparotomy, when the right ovary was found to be cystic and there was a mass of veins in the right broad ligament. The right tube and ovary were removed with this mass. The patient recovered and had a family. In another case a primipara, aged 31, had aching pains in both iliac regions and a mass of veins was removed from the left side. A year later the symptoms recurred and a similar mass was removed from the right broad ligament and panhysterectomy was performed.

Some writers have stated that retroflexion is a cause of this condition, but Shaw has found this in only one case. In each of his cases the mass was large enough to suggest a pelvic tumor. In five cases the pain was left sided. In the first three cases he excised the veins without curing the patient, but in the others a more drastic procedure proved successful. The etiology of the condition was obscure. He thought it was more common than is generally supposed and that the usual treatment was unsatisfactory.

Instruction in Air Raid Precautions

The government scheme of appointing medical instructors for service in the Air Raids Precautions Department was begun in September 1936 with ten physicians who had been trained in the Civilian Anti-Gas School. It soon became apparent that for the instruction of the medical, dental, veterinary and nursing professions this number was inadequate, and therefore six further trained instructors were appointed in December. By the end of January 3,300 persons had been instructed: 1,600 physicians, 1,300 nurses and 400 medical students. The majority of the physicians were reached through the British Medical Association, twenty of whose branches have already received a complete course of instruction and another thirty are at present receiving one. In some cases, when desired by the trainees, an examination was held and all but a small percentage reached a qualifying standard. The demand for instruction is now so great that there is difficulty in complying with it and programs are booked many months ahead.

Rockefeller Traveling Fellowships

The Medical Research Council has been entrusted by the Rockefeller Foundation, New York, with \$15,000 annually for three years in the first instance, for the award of traveling fellowship in medicine to candidates in the United Kingdom. This benefaction renews an arrangement that was highly successful during an earlier period but which had latterly been interrupted during a revision of the general policy of the foundation. These fellowships are intended for graduates who have had some training in research in clinical medicine or surgery or other branch of medical science and are likely to benefit by a period of work at a chosen center in the United States or elsewhere before taking up a position for higher teaching or research in this country. An analysis made at the end of the previous ten year period, of the positions occupied by the seventy men and women who had completed their tenure of the Rockefeller fellowships awarded by the council, show that twelve are professors in universities, that the others occupy whole time positions for teaching and research, and that sixteen hold part time positions of the same kind.

PARIS

(From Our Regular Correspondent)

April 10, 1937.

Universal Decline in Number of Marriages

In the March 10 issue of the *Presse médicale* appeared an article by Dr. Philippe Dally stating that in 1935 the number of marriages had increased in fifteen countries, remained unchanged in three and declined in twelve. In Germany there was a 15 per cent increase in 1934 but a decrease of 12 per cent in 1935, being 9.7 per thousand in the latter year as compared to 11.1 per thousand in 1934. Governmental measures, such as loans and gifts to newlyweds, have not been followed by an increase in the number of marriages. The same was true of Italy's encouragement measures, the increases registered in 1933 and 1934 being practically nullified by the decrease of 11 per cent in 1935. The proportion of marriages in Italy has fallen from 7.4 to 6.6 per thousand, a figure lower than ever before noted. The country in which the drop in 1935 has been most marked is Bulgaria (7.8 instead of 9.3 per thousand). In France, although the drop was not so striking, the number being 6.8 in 1935 instead of 7.1 per thousand in 1934, this is not surprising, as the number of marriages has been low for a number of years. In fifteen countries there has been an increase. Australia and New Zealand head the list, with northern Ireland next. The proportion remains unchanged in the United States, being at present 10.4 per thousand.

Antibotulism Anatoxin

Drs. Weinberg and Goy of the Pasteur Institute have succeeded in preparing an anatoxin against botulism. They have shown that it is possible to vaccinate animals with this anatoxin and even to prepare an *antibotulinus serum* against the two most toxic types (A and B) of the bacillus. The serum is more active toward the A than toward the B type. They have followed the same technic as in their preparation of the polyvalent antigangrene serum.

In 194 cases of botulism, Welikanov, a Russian bacteriologist, used the A and B antibotulism serum in 119. Only twenty-four (20 per cent) of the patients died. The serum was not given to the remaining seventy-five patients, and seventy (93 per cent) of these untreated persons died.

In an article in the February 1 issue of the *Siècle médical* by Kazcef, in which the subject of botulism is reviewed, the author concludes by stating that, as the result of this use of antibotulism serum the treatment of this type of infection appears to be solved.

Relation of Alcohol to Cancer of Esophagus

At the February 23 meeting of the Académie de médecine a paper on the relation of alcohol to cancer of the esophagus was presented by Piquet and Tison. Out of 110 patients, 102 (93 per cent) were heavy drinkers. Of the 110 cancers of the esophagus, 101 were found in men. In alcoholic addicts, eighty-two were in the upper and twenty in the lower part of the esophagus. In abstainers, four were in the upper and four in the lower portions. The fact that alcohol remains a longer time in the upper part of the esophagus led the authors to ascribe an etiologic relation of the alcohol to the larger number of high-lying cancers. They believe that alcoholic drinks cause a chronic irritation followed by metaplasia of the epithelial lining and hence they are a cancerigenic agent of much importance.

French Gynecologic and Obstetric Congress

The next French Gynecologic and Obstetric Congress will be held in Paris September 30-October 2. The subjects of the collective reviews for this year's meeting will be: 1. Treatment of urinary incontinence in women: Drs. Muret and Rapin of Lausanne, Switzerland. 2. Treatment of vesicovaginal fistulas: Prof. Paul André of Nancy. 3. Pathogenesis and treatment of uteroplacental apoplexy: (a) Pathogenesis: Prof. Alexandre Couvelaire of Paris. (b) Treatment: Dr. Auguste Weymeersch of Brussels. 4. Treatment of pruritus vulvae: (a) Medical treatment: Dr. Vayssière of Marseilles. (b) Surgical treatment: Dr. Cotte of Lyons.

Meeting of French Ophthalmologic Society

The fiftieth annual meeting of the French Ophthalmologic Society will be held June 28-30 in Paris. The subject of this year's collective review (Rapport) will be Optochiasmatic Arachnoiditis, read by Dr. Bollack of Paris. For all information, address Dr. R. Onfray, 6 Avenue La Motte-Picquet, Paris (7).

BERLIN

(From Our Regular Correspondent)

April 7, 1937.

News of the Universities

Recently additional regulations with respect to the granting of the title of doctor were instituted (*THE JOURNAL*, Nov. 16, 1935, p. 1619). Several further noteworthy prerequisites have been decreed. A doctoral candidate must now have studied for at least two semesters at the university bestowing the degree. All dissertations must henceforth be written in German and the diplomas, which previously had been drawn up in Latin, in accordance with ancient tradition, shall hereafter be written in the German language. The revocation of a doctoral degree has now been extended to apply to persons who have renounced or been deprived of their German citizenship. An exception to this rule is that the mere fact of Jewish racial origin does not justify revocation of the title.

The rumor that the number of German universities is to be reduced continues rife in academic circles, despite repeated official denials. One hears it said on the part of the docents that it would be better to strengthen the smaller universities at the expense of the larger, since in the latter the personal feeling between teacher and student is easily lost.

It has already been reported (*THE JOURNAL*, June 15, 1935) how the maximal number of students in certain universities has been fixed by law. This measure was destined to divert the great numbers of students crowding the big city universities to the smaller and less well attended schools. The results have been diverse. In the winter semester of 1935-1936, the most recent semester for which complete figures are available, the aggregate enrolment of all twenty-three German universities was 60,048; namely, less than half the enrolment during the summer semester of 1932. Berlin continues to show the largest

enrolment of any German university. There were 10,000 students registered there in the summer of 1933. With the general retrogression of the academic world, this figure had sunk to 7,278 in the summer of 1934. The maximal contingent for Berlin was then fixed at 6,600, but this limit has been overstepped, for 8,220 were enrolled in the winter semester of 1935-1936. At Munich, second only to Berlin in point of attendance, the number of students declined from 8,000 to 7,000 and the fixed contingent of 5,200 students was not exceeded. The falling off in attendance has been even more abrupt at Leipzig; 6,400 students were in residence there in 1933, whereas only half as many are registered today. The present enrolment corresponds roughly to the stipulated limit. In most of the universities attendance has generally been kept within the bounds of the prescribed contingents, although these have occasionally been exceeded, as at Hamburg and Cologne. The movement to allocate more students to the medium-sized university towns has to a certain extent been successful, especially at Freiburg and Heidelberg, two well liked schools which reported relatively large registrations for the winter semester of 1935-1936: Freiburg more than 3,000 students, Heidelberg around 2,600.

The average proportion of women in the university student population is 13 per cent. At Hamburg, however, 33 per cent of the students were women; at Berlin, 17 per cent. Several of the other universities are less favored by the woman student.

Berlin University has published as one of a series of advisory pamphlets for students some interesting data on the academic expenses of the individual student. On entering a university the student is assessed a matriculation fee of about 30 marks. A so-called general fee (for sickness and accident insurance, use of the university libraries and so on) also comes to about 30 marks. Then there is a "study fee" of 80 marks and in addition there are the "lecture fees" for admittance to lectures and to other exercises. These are computed at the rate of 2.5 marks per weekly semester-hour; thus if a lecture course meets four times each week the charge for the entire semester will be 10 marks. Besides, students in the natural sciences and in medicine are required to pay special fees for use of the laboratories and so on, which amount to about 35 marks. Although the sum total of the student's academic expenses will depend largely on the number of lectures attended, some rough estimates have been hazarded. According to these a medical student in his first semester will pay the university from 210 to 230 marks and in subsequent semesters from 230 to 250 marks. A medical student's books will in addition cost him from 50 to 70 marks and he will occasionally have to purchase instruments as well.

To the foregoing must be added the examination fees. German candidates for the doctorate in medicine pay 200 marks, foreigners 300 marks. The examination taken by the foreign student is known as the "Medizinische Rigorosum." The costs of printing a dissertation average from 200 to 400 marks. Further expenses are incurred by those who take the state examination in medicine. Altogether the prospective physician must figure on an outlay of from 3,500 to 4,000 marks for academic expenses alone.

The foregoing data may be supplemented by estimates on the minimal living expenses of students, which were recently set forth in a widely circulated booklet entitled "The University Guide." Unless the school is located in the student's home town he must figure on residing at the university during the two semesters of each academic year; namely, seven months out of the year (three summer months, four winter months). The following minimal estimates of a student's monthly living expenses are of particular interest: lodging and breakfasts, 25 marks; dinners and suppers at the students' commons, 30 marks; dinners and suppers on Sunday, when the commons

is closed, an additional 10 marks; pocket money for incidentals, 15 marks, a niggardly estimate; books (other than textbooks), paper and so on, 12 marks. The minimal monthly budget for living expenses thus comes to 92 marks. This figure, however, represents an uncommonly low estimate of expenses and no student could "get by" on such a small allowance without suffering privations. Nevertheless there are many students who never spend as much as this estimated minimum. On the basis of 92 marks per month, living expenses will amount in five or six academic (seven month) years of residence at the university to between 3,000 and 4,000 marks. Thus the grand total of estimated expenditures incident to a university education will be between 7,000 and 8,000 marks. The extent to which organized financial aid to students is helping to ameliorate the situation was also recently discussed. Nearly every tenth student is a recipient of these aids in some form or another.

Thoracic Tumors

According to recent German statistics, pulmonary carcinoma is the only type of cancer that has exhibited a universally sharp increase. Professor Cramer, who recently discussed this problem in the Berlin Medical Society, believes that bronchial carcinoma is not based on any single etiologic factor but on a complex of factors. Metaplasias of tissue on the basis of an inflammation may, together with factors such as tobacco, heat and other injurious agents, lead to the formation of cancer. In Japan, for example, five per thousand of the generator gas workers develop bronchial carcinoma. These workers not only are forced to inhale dust but are exposed to the noxious influences of poisonous gases and heat as well. Locomotive engineers, on the other hand, although accustomed to a similar inhalation of dust, are not subject to the disease. In elderly patients who present coughs, dyspnea, chest pains, paralysis of the recurrent laryngeal nerve or of the phrenic nerve, this diagnosis should be thought of. For differential diagnosis, lateral visualization, shutter exposure and bronchography are most important; slight unilateral impairment of respiratory function may be detected by means of the kymogram at a time when as yet no large tumor shadows are present. Bronchial carcinoma usually metastasizes quickly. Animal experimentation shows that in patients with low immunity fatal pneumonia may follow a roentgen irradiation if powerful doses are employed. Early diagnosis and a preliminary amelioration of the toxic condition are therefore prerequisites of a successful therapy.

ITALY

(From Our Regular Correspondent)

March 15, 1937.

Treatment of Chronic Malaria

Prof. Maurizio Ascoli, head of the medical clinic of the University of Palermo, in a recent lecture to the army physicians, reviewed the principles on which his method for the treatment of chronic malaria is based. He noticed that many patients who suffer from chronic malaria recover from the disease by living in high altitudes. This fact is due, he believes, to the physiologic contracture of the spleen caused by the high altitude. He reproduced the contracture of the spleen in malarial patients by intravenous injections of progressive doses of from 0.01 to 0.2 or 0.1 mg. of epinephrine. Examination of the patient shortly after the injection shows progressive contracture of the spleen. When contracture stops the organ expands slowly again, but it never returns to its size previous to the injection. The process of contraction and reexpansion of the spleen is repeated by every new injection and at last the spleen returns steadily to its normal size. During each contraction the spleen delivers the malarial parasites to the blood. At the end of the treatment splenomegaly has entirely disappeared and the blood dyscrasia and general condition of

the patient improve. Intravenous epinephrine injections, with or without small doses of quinine, also give satisfactory results in acute malaria. Up to the present no recurrences have been observed in the several patients who received the epinephrine treatment.

Morgagni's Endocraniosis

Prof. Nicola Pende, head of the Istituto di patologia medica of Rome University, in a recent lecture to the Accademia Medica of Rome spoke on Morgagni's intracranial hyperostosis. Patients with this disease suffer sometimes from intractable frontal headaches and apathy, asthenia and psychic depression. In other cases there are sexual disturbances complicated either by obesity or by emaciation. Some patients suffer from diabetes insipidus, disorders of sleep, psychic changes, irritability, neurasthenia and in some instances dementia. Other patients show progressive blindness or deafness, loss of the sense of smell, epileptiform and involuntary sudden muscular contracture. Symptoms belonging to the different groups may appear sometimes in association. According to the speaker, the cause is the presence of a special lesion on the internal surface of the cranial bones, which is more frequent at the frontal and basal regions than on the other internal regions of the cranium. The lesion was described for the first time by Morgagni. It consists in new formation of bone tissues, which protrude as patches or bands at the internal aspects of the cranial bones and cause irritation or compression of the brain, with consequent circulatory disturbances at the prefrontal and frontal lobes and at the base of the brain. From the literature it seems that the lesions are located at the internal frontal region. They have been found on the internal aspects at the base of the cranium. Bertolotti found through x-ray studies that infection of the cranial or facial sinuses may spread intracranially to the internal aspects of certain cranial bones and to the dura mater, with consequent thickening of the involved bones. The process may originate also in nutritional disturbances of the bones or of the dura mater. In all cases hypophyseal and neurohypophyseal disorders may coexist.

Atabrine and Malaria

The Supreme Council of Public Health accepted atabrine as a subsidiary product of quinine for the treatment of malaria in municipal centers. The minister of the interior, in giving instructions as to the use of atabrine to the authorities of provinces and municipal towns, said that atabrine is prepared in 0.1 Gm. tablets and will be prepared and sold through supply centers organized by the government. Atabrine is an acridine synthetic derivative having a malarial parasiticide action which, in the course of the malarial attack, has the same action as quinine. The daily therapeutic dose for adults is 0.3 Gm. divided into three doses of 0.1 Gm. each for at least seven consecutive days. The daily preventive dose is 0.05 Gm. In certain cases the appearance of a yellow pigmentation of the skin follows the administration of atabrine. This is a reaction of the skin to the drug. It should not be mistaken for jaundice, because the drug has no action on the liver or on the blood. At the present time atabrine will be given for malaria only to adults in hospitals, clinics and centers for ambulant patients.

Surgical Collapse Therapy

Professor Omodei-Zorini of the University of Rome, in a recent lecture before the Federazione per la lotta contro la tubercolosi, reported results of simple apicolysis in pulmonary tuberculosis. Forty-four operations were performed from one to four years ago. The best results were those obtained in recent apical and subapical cavitations and in chronic micro-nodular tuberculosis with or without relapsing hemoptysis of the apex. Less satisfactory results were obtained in dense

fibrous tuberculosis of the apex, with or without cavitation, and in lobitis with retraction, and cavitation. Large solitary cavities of the apex and apical ulceration with a tendency to propagate itself apicocaudally were not modified by the operation. On the whole, satisfactory results were obtained in 47.7 per cent of the cases, incomplete results in 20 per cent and no effect on the condition in 32.3 per cent. Good results were also reported from paraffin filling in seventeen cases. In twelve cases in the group the operation was primary and autonomous. Permanent recovery was obtained in two cases. According to the speaker, paraffin filling is a delicate procedure, which may be followed by complications. Nevertheless, if the operation is performed by a good technic and according to precise indications, satisfactory results may be obtained. The indications for performing posterior apical thoracoplasty were discussed. It is, he stated, the operation of choice in the treatment of rigid cavities with adhesions at the apex of the lung. At the suggestion of the speaker, Dr. Ascoli reported results obtained in a group of twenty patients from posterior apical thoracoplasty. The operation was made a few months or a year ago. In eleven cases the cavities rapidly regressed and the sputum showed no more tubercle bacilli. In seven cases the outcome was not as yet complete. Two patients died a month after the operation. One of the patients died from contralateral exudative pleuritis and the other one from toxemia and cardiorespiratory insufficiency.

Graduate Studies

The national board of education met recently under the chairmanship of the ministry of the department of public education. The advisability of reducing the number of schools for specialization in medicine and graduate study was discussed. There are now 279 schools of this nature in Italy, 144 of which are connected with faculties of medicine and surgery. The minister said that it is advisable to close the schools at which the recent attendance has not been sufficient. The minister's motion met with the approval of the board. It was resolved that from now on the curriculum, duration of studies and character of examinations of the schools for specializing and those for postgraduate studies would have to conform to the regulations established by the board. The relative values given to certificates for graduate studies and to diplomas delivered from schools of specialization will also be determined. The regulations were placed in the hands of an executive committee.

Annual Book of Hospitals of the World

On the occasion of the exhibit of the replicas of the hospitals of several nations, which will be shown in Milan in the near future, a resolution was accepted by the members of the international association of hospitals. It concerns publication of an annual book written in five languages which aims to give actual information on the existence, organization, functions and development of hospitals all over the world. The expenses for publication of the book and related expenditures will be met by the international association of hospitals.

Marriages

HERMANN L. WITTE, Trenton, N. J., to Miss Erika Loes of Freiburg, Germany, in New York, February 6.

JAMES A. SELIGMAN, Philadelphia, to Miss Eleanor Bains Brown of Bala, Pa., April 9.

WALTER RAYMOND WASCHICK, Rossville, Ill., to Miss Mellic Gant at Sheldon, January 30.

WILLIAM DUNSFORD LYON, Akron, Ohio, to Miss Pearl Beulah Lyon, February 1.

GERALD THEODORE SCHWARZ, Akron, Ohio, to Miss Iva Patton, January 28.

Deaths

George Walker, Baltimore; University of Maryland School of Medicine, Baltimore, 1888; member of the Medical and Chirurgial Faculty of Maryland; fellow of the American College of Surgeons; was an assistant in the outpatient surgical department, 1898-1900, chief of clinic, 1900-1902, instructor in surgery, 1902-1905, and later associate in surgery, Johns Hopkins University; during the World War went to France with the Johns Hopkins Unit, four months later was detached and assigned to ocean ports for work in prevention of venereal disease, and in December 1918 was appointed urologist in chief to the American Army in France; in 1922 was awarded the Distinguished Service Medal; in 1921 was awarded the honorary doctor of laws by the University of South Carolina; in 1934 was appointed chairman of the medical advisory board of the Baltimore City Hospitals; aged 67; visiting surgeon to the Church Home and Infirmary and the Union Memorial Hospital, where he died, March 31.

Milton Jay Greenman, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; director of the Wistar Institute of Anatomy and Biology since 1905 and assistant director, 1893-1905; lecturer on physiology, Biological School of the University of Pennsylvania, 1892-1893, and instructor in biology, 1887-1892; member of the American Association of Anatomists, American Society of Naturalists, American Philosophical Society and the Philadelphia College of Physicians, and of other scientific organizations; served as trustee to the Marine Biological Laboratory, Woods Hole, Mass., Vineland (N. J.) Training School, Laboratory of Biological Survey of the Mount Desert Region, Bar Harbor, Maine, and Yale Laboratories of Primate Biology; was awarded the honorary degree of doctor of science by the University of Pittsburgh in 1912 and by the University of Pennsylvania in 1919; aged 70; died, April 7, in the University of Pennsylvania Hospital.

James Leslie Busby ♂ Pasadena, Calif.; Starling-Ohio Medical College, Columbus, 1913; associate professor of medicine at the College of Medical Evangelists; fellow of the American College of Physicians; served during the World War; formerly assistant chief medical adviser in the Bureau of War Risk Insurance, and chief of the section of medicine and surgery, hospital division of the United States Public Health Service; served in various sections at the Mayo Clinic, Rochester, Minn.; on the staff of the Los Angeles County Hospital, Pasadena and St. Luke's hospitals; aged 46; died, February 18, of carcinoma of the bronchus.

Otis Sumter Warr ♂ Memphis, Tenn.; University of Nashville (Tenn.) Medical Department, 1907; professor of medicine at the University of Tennessee College of Medicine; fellow of the American College of Physicians; president of the Memphis and Shelby County Medical Society; served as a member of the medical advisory board during the World War; on the staffs of the Gantly-Ramsay Hospital, Memphis General Hospital and Methodist Hospital; aged 55; died, March 22, in St. Mary's Hospital, Knoxville, of lobar pneumonia.

Alvin J. Lorie ♂ Kansas City, Mo.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1911; county coroner; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Laryngological, Rhinological and Otolological Society; fellow of the American College of Surgeons; visiting otolaryngologist to St. Joseph, Research, Kansas City General and Menorah hospitals; aged 50; died suddenly, March 8, in Miami Beach, Fla.

Mark D. Hollis, Savannah, Ga.; Baltimore Medical College, 1898; acting assistant surgeon, U. S. Public Health Service, at the U. S. Immigration Station from November 1913 to August 1936 and was retired for disability in September 1936; served at many stations of the service and was medical officer in charge of the U. S. Quarantine Station, Savannah, from August 1930 to 1936; aged 62; died, February 15, in Buena Vista, of coronary occlusion.

William A. Durringer, Fort Worth, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1885; member of the State Medical Association of Texas; fellow of the American College of Surgeons; member of the staff of St. Joseph's Hospital; consulting surgeon to the Chicago, Rock Island and Gulf Railroad; division surgeon to the Southern Pacific Lines; aged 75; died, February 18, of myocarditis and encephalitis.

Frank Harrison, Dallas, Texas; Southern Methodist University Medical Department, Dallas, 1915; member of the State Medical Association of Texas; served during the World War; at one time connected with the U. S. Public Health Service; formerly instructor in clinical neuropsychiatry at Baylor University College of Medicine; on the staff of the Baylor University Hospital; aged 50; died, February 15, of influenza and pneumonia.

Harrison Sales Forgrave ♂ St. Joseph, Mo.; Central Medical College of St. Joseph, 1897; past president of the Buchanan County Medical Society; president of the board of health; fellow of the American College of Surgeons; formerly professor of pediatrics at the Ensworth Central Medical College; aged 63; member of the staff of Missouri Methodist Hospital and St. Joseph's Hospital, where he died, February 14, of embolism.

Willis G. Gregory, Buffalo; University of Buffalo School of Medicine, 1882, and a degree in pharmacy in 1886; professor of pharmacy at the University of Buffalo School of Pharmacy since 1886 and dean of the school from 1890 to 1936; was a member of the state board of pharmacy for many years and of the U. S. Pharmacopoeial Revision Committee from 1890 to 1920; aged 79; died, March 20, of cerebral hemorrhage.

Reuben Adolphus Campbell ♂ Major, U. S. Army, retired, Dallas, Texas (licensed in North Carolina in 1897); served during the World War; entered the medical corps of the U. S. Army as a major in 1920 and retired in 1933 for disability in line of duty; aged 67; died, February 26, in the Station Hospital, Fort Sam Houston, San Antonio, of chronic lymphatic leukemia.

Marie Pelecovich, Worcester, Mass.; University of Michigan Medical School, Ann Arbor, 1932; member of the Massachusetts Medical Society; on the staffs of the Holden (Mass.) District Hospital and the Harvard Private Hospital; on the courtesy staff of the Fairlawn Hospital; aged 29; died suddenly, February 8.

Charles Eliakim Norton, Lewiston, Maine; Medical School of Maine, Portland, 1876; member of the Maine Medical Association; for many years on the staff of the Central Maine General Hospital; aged 84; died, February 19, of influenza, nephritis and pneumonia.

Thomas Wynne Watts, Portland, Ore.; Kentucky University Medical Department, Louisville, 1906; member, and was president for 1936-1937 of the Oregon State Medical Society until he resigned, March 24, because of ill health; aged 58; died, March 26.

Charles Everett Rankin, Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; aged 73; died, February 24, of chronic myocarditis and bronchiectasis.

Aurelius Thomas Siemianowski ♂ Chicago; Chicago Medical School, 1927; aged 34; on the staff of the Auburn Park Hospital, where he died, February 25, of bronchopneumonia.

Adolph Antone Maulhardt, Oxnard, Calif.; Harvard University Medical School, Boston, 1897; aged 63; died, February 15, in St. John's Hospital, of pneumonia and acute nephritis.

James Richard Lewis, Burlingame, Calif.; Bellevue Hospital Medical College, New York, 1885; aged 78; died, February 5, of chronic myocarditis and arteriosclerosis.

Horace Leland Hulett, Milton, Wis.; University of Buffalo School of Medicine, 1896; aged 65; died, February 2, of lobar pneumonia, paralysis agitans and angina pectoris.

Erasmus Edward Adams, Marshall, Ark.; University of Michigan Homeopathic Medical School, Ann Arbor, 1877; aged 84; died, February 3, of pneumonia.

Rudolf Frederick Rohlfing, Los Angeles; Northwestern University Medical School, Chicago, 1906; aged 56; died, January 14, of acute myocarditis.

William Bedford Keeton, Medina, Tenn.; Vanderbilt University School of Medicine, Nashville, 1895; aged 73; died, February 4, of chronic nephritis.

James Mitchell Armstrong, Calgary, Alta., Canada; University of Toronto (Ont.) Faculty of Medicine, 1893; aged 72; died, February 9.

John Bolinger, Springfield, Mo.; Missouri Medical College, St. Louis, 1882; aged 78; died, February 8, of carcinoma of the liver.

Joseph J. L. Finnell, Peoria, Ill.; Louisville (Ky.) Medical College, 1898; aged 68; died, February 18, of carcinoma of the bladder.

John Alfred Smither, Stockton, Calif.; Gross Medical College, Denver, 1899; aged 64; died, February 7.

Correspondence

"SURGICAL TREATMENT OF MALIGNANT HYPERTENSION"

To the Editor:—With reference to the editorial in THE JOURNAL, February 20, entitled "Surgical Treatment of Malignant Hypertension," may I call attention to the omission in this editorial of reference to the report of the first case of malignant hypertension subjected to bilateral lumbar sympathectomy. This was reported in THE JOURNAL, Sept. 26, 1925, in an article entitled "Bilateral Lumbar Sympathetic Neurectomy in the Treatment of Malignant Hypertension," by Leonard G. Rowntree and Alfred W. Adson.

LEONARD G. ROWNTREE, M.D., Philadelphia.

VINCENT'S STOMATITIS AND GRANULOCYTOPENIA

To the Editor:—That no mention of agranulocytic angina or granulocytopenia was made by Farrell and McNichols in their article on the efficacy of various medicaments in the treatment of Vincent's stomatitis (THE JOURNAL, February 20) is a surprising omission. Attention should be called to the necessity for a leukocyte and a differential count in any case of severe stomatitis, no matter what organisms are found in the mouth. Certainly the blood smear should be examined before using neoarsphenamine or strong local applications advised elsewhere. In the article referred to, three cases of noma are reported without mention of the leukocyte count, although a benzene nucleus was given therapeutically in cases 1 and 2. A patient with Vincent's stomatitis with granulocytopenia under my care received poor treatment and I feel that this point should be drawn to the attention of your readers to save others from similar error. No practitioner should feel that he has completed the investigation of a case of stomatitis because he has found Vincent's organism in a smear.

DAVID CHRISTIE, M.D., Elfros, Sask.

INJECTION METHOD IN TREATMENT OF HERNIA

To the Editor:—On page 542 of THE JOURNAL, February 13, I am quoted, but with such omission as to invert the meaning of my own plain statements. The author refers to me in these words: "He 'naturally' assumes that, if patients do not return their hernias are 'gone and forgotten.'" Reference to my original article discloses, however, that I am not as naïve as this would indicate. What I actually said was:

I cannot speak with such certainty in the matter of recurrences, for we too often lose track of our old cases. I ask my patients to return in six months and again in a year, and often they do. Too often, however, I never see them again, and since my arrangements invite their return if any weakness appears, I naturally assume that their hernias are gone and forgotten. Among the more careful patients who do return for a check-up, a few rare cases of weakening appear. But as a few additional injections invariably correct the condition such weakening can hardly be called recurrence, certainly not in the postoperative sense, where surgery offers only a complete new operation to correct the condition. I myself never consider my own treatments complete without these periodic later examinations and (when needed) reinforcing injections.

It should be clear that I had made special arrangements inviting the return of patients in whom weakening or recurrence might occur and that I therefore had special reason for assuming the hernias gone and forgotten when the patients failed to appear. Obviously too I was fully conscious that patients are prone not to appear when recurrence develops and that end result figures unchecked by careful follow up have no reliability.

There can of course be no objection to his taking exception to my conclusions if his experience and judgment warrant. I

offer no criticisms on his disagreement over the solution I use. He himself, however, employs a phenol and thuja solution which I consider extremely dangerous, as evidenced by the article by Drs. Zieman and Larkowski in THE JOURNAL, Nov. 7, 1936, reporting tissue necrosis resulting from the use of such a solution.

I am also convinced that with wider experience he will find the injection method applicable to virtually all the accessible abdominal hernias, several of which he now contraindicates.

S. W. FOWLER, M.D., New York.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DESENSITIZING TO HISTIDINE IN ALLERGY

To the Editor:—A boy, aged 14 months, is allergic, having eczema and gastro-intestinal disturbances consisting of intestinal cramps, gas formation and diarrhea. Although attempts have been made to correct the condition by eliminating the offending foods, it has not been successful, as he is sensitive to many foods and soon is on an insufficient diet. Even then he is not entirely free from symptoms. In some cases of allergy, particularly chronic urticaria, good results have been obtained by desensitizing the patient to histidine, the amino acid which is the decomposition product of any protein. Can you tell me whether any work has been done in desensitizing to histidine in cases such as I have described? If not, why wouldn't this be a rational plan? Would there be any danger with such a procedure in such a young child; that is, any more than in an adult? What dosage would you start with: the same as that used in the adult with chronic urticaria? Please omit name. M.D., Ohio.

ANSWER.—Weiss and Aron (*Presse méd.* 41:1880 [Nov. 22] 1933) attributed the presumed beneficial effect of histidine in peptic ulcer to a replacement factor. They found that when the normal digestive process had been interfered with experimentally in dogs so that protein digestion was incomplete, peptic ulcer developed. This could be relieved with histidine injections and they believed that ulcer was due to a histidine deficiency in the tissues resultant on defective protein digestion.

Lenormand (*Presse méd.* 41:1141 [July 19] 1933) expressed his belief that the beneficial effect of histidine therapy in ulcer was due to its action on the vagus-autonomic system, causing an increased secretion of mucus and thereby protecting the gastric mucosa. Acting on the same theory he employed a mixture of 2 per cent tryptophan and 4 per cent histidine in the therapy of hay fever. Injections were given daily, intracutaneously and in doses of from 0.2 to 0.4 cc. Treatment was given only in the presence of symptoms; that is, coseasonally. Among twenty-nine cases, fourteen were reported entirely relieved, eight much improved and five improved. He attributed this improvement to stimulative action of the intracutaneous inoculation on the vagus-sympathetic system with resulting increased secretion of mucus in the nasal mucosa, which served to protect the mucous membrane against pollen contact. He believes that histidine may be broken down in the skin into histamine, thereby producing a histamine effect.

Lenormand reported that he did not obtain relief in other allergic manifestations such as nonseasonal asthma, food and drug sensitization or migraine.

Israel and Jacob (*Presse méd.* 43:1288, 1935) reported relief from asthma by scarification of the skin and application of 4 per cent histidine hydrochloride to the scratches.

There do not appear to be any reports of unfavorable reactions from the intracutaneous or scratch use of histidine in the concentration recommended. What benefits may accrue appear to be temporary, lasting only through the duration of the treatment.

There is some risk of permanent scarring from the continued intracutaneous injection of such large amounts of fluid.

One American investigator (work unpublished) tied intragluteal injections of histidine in a variety of allergic diseases without evidence of benefit.

It develops from the foregoing that the only method of administration which has been reported beneficial in some allergic

states (hay fever and asthma) has been after intracutaneous administration. It also is apparent that it is a temporary palliative at best and should not be used as a substitute for more effective or more permanent allergic methods when the latter are practicable.

Skin reactions to foods are less reliable than those to inhalants. A positive food reaction does not necessarily mean that the person cannot eat that food. On an average, anywhere up to half of the positively reacting foods may be found to be harmless. It may possibly be found therefore that the diet need not be as rigidly restricted as appears from the tests.

The dose of histidine for a child 14 months of age should be about the same as for an adult, 0.1 or 0.2 cc. intracutaneously. Since no unfavorable reports have been reported, it would appear that there are no contraindications to a trial of this method of treatment.

DIGITALIZATION BY MOUTH AND BY VEIN

To the Editor:—Can you tell me the quantitative difference, if any, in digitalization by mouth and by vein? Assuming that it would take from 20 to 30 cat units to digitalize, is there any valid reason why this could not be done as well, or better, by vein than by mouth—if, say, not more than 2 to 4 cat units is given every three or four hours—of course watching for signs of digitalization. This when none had been given recently. Would it be entirely safe to digitalize by vein, figuring to give half a dose, one fourth in six hours and the remainder in six hours?

L. L. STARKEY, M.D., Harlingen, Texas.

ANSWER.—The difference in dosage between digitalis given by mouth and given by vein is not known with sufficient accuracy to justify the administration of digitalis intravenously except in extreme emergency. Just what such an occasion might be it is hard to say. It would rarely occur, if ever.

A smaller dose is effective if given by vein. Digitalis is standardized to a degree of accuracy quite sufficient for oral administration, but it is not absolutely accurate or constant. Small variations in action would be of much greater consequence if given intravenously.

Digitalis might be administered as stated in the question without any great degree of danger. But it is not devoid of danger to the patient, and why do it?

TREATMENT OF BEGINNING DEMENTIA PARALYTICA

To the Editor:—A white man, aged 35, had dilatation and blurring of vision of the left eye. He had syphilis in September 1925 and was treated by a prominent surgeon in New Orleans, with nearsphenamine, size of dose not known, given at weekly intervals for four injections, and then two more injections one month apart. As the case was diagnosed early at that time by the Wassermann reaction, which he stated was 2 plus, it was thought that the treatment was adequate. After these six injections the Wassermann reaction was negative and has been checked yearly since that time and has always been negative. Examination of the eyes was negative with the exception of a fixed dilated pupil of the left eye about 10 mm. in diameter. Treatment has been 0.3 Gm. of nearsphenamine for two injections and then 0.45 Gm. of nearsphenamine for eight injections for the past ten weeks, together with 30 grains (2 Gm.) of potassium iodide daily. Before treatment was begun, spinal puncture was done with the following results: gold curve 5555543210, Wassermann reaction 4 plus. The left pupil is still dilated to about 7 mm. in the daytime. In bright light the vision is about 20/40. However, after about the fifth treatment the pupil began to react to light and somewhat to accommodation, the improvement in accommodation not being as good as the reaction to light. A complete neurologic examination was made at the start of treatment ten weeks ago, which was negative except for the left pupil and accommodation. However, in the last few days he has been having very slight auditory hallucinations, and while talking to him recently I noticed that he was evidently becoming slightly unbalanced, telling me that his teeth all that day would suddenly protrude toward his lips and that he would have to push them back in line (his teeth are very sound and are widely spaced), saying that his teeth are crowded. What treatment should be pursued at this time? Please omit name and address.

M.D., Indiana.

ANSWER.—The history is unfortunately the history that is so often given by the average patient with syphilis. The doctor, instead of treating the case of syphilis with the required amount of treatment, depends entirely on a Wassermann reaction. As soon as the Wassermann reaction becomes negative, he believes that the syphilis is cured. Unfortunately, this is not the case. The patient would have been far better off if he had had thorough, continuous treatment with arsenicals and bismuth compounds at the time he contracted the disease. By sufficient treatment is meant at least thirty injections of an arsenical and a like amount of an insoluble bismuth salt, for example, bismuth salicylate.

Apparently now he is suffering from a beginning dementia paralytica, which is indicated by the symptoms and by the gold colloid curve, all of it due to lack of adequate treatment. The

patient should have a course of malaria therapy. If he stands it all right, probably taking from twelve to fifteen chills, and following this, if the eyegrounds show no contraction, it would be well to put him on a long course of tryparsamide injections, giving them intravenously once a week, starting off with a dose of 1.5 Gm. and gradually working up to a maximum of 2.5 Gm. Sometimes after the third or fourth injection the patient will complain a little of blurring of the eyes. If this is the case, the treatment should be discontinued for one or two weeks and then cautiously begun again, whereupon there will probably be no difficulty. Often as many as fifty weekly injections of this preparation are given in similar cases.

Naturally, it would be impossible to outline further treatment without information at a later date.

CYCLIC NAUSEA AND VOMITING

To the Editor:—A girl, aged 17 years, complains of severe nausea and vomiting accompanying her menstrual periods. The periods began at 13 years of age. The first six months they were irregular but since that have been regular, the interval being twenty-eight days. The periods last between five and seven days, the flow being normal in every respect. The nausea and vomiting began about two years ago and has been getting progressively worse. The periods begin without the patient's knowledge, there being no prodromal symptoms and no cramps or sickness at onset. Usually between two and four hours after the onset of the flow she begins to feel faint, followed by nausea and vomiting. The stomach is emptied of food, after which she vomits gastric secretions and bile. This continues for about twenty-four hours. The patient is 5 feet 4 inches (163 cm.) tall and weighs 120 pounds (54 Kg.). Physical examination reveals absolutely nothing. Pelvic examination has not been made. As for treatment I have advised in the way of general measures plenty of exercise and sunshine, a well balanced diet, and strict elimination. Internal treatment has been confined to the use of thyroid, from one-half to 1 grain (0.03 to 0.065 Gm.) twice a day for two months, without improvement. Sedatives have been used beginning several days before the expected flow without results. I also tried antuitrin-S, 100 rat units, every three days. This was done only for one month, which I realize was not enough to bring about much change. Do you advise more antuitrin-S and, if so, how much should be given and over how long a period? Would it be advisable to use corpus luteum? Anything you may suggest in the way of treatment will be appreciated. If this should be published, please omit name.

M.D., Nebraska.

ANSWER.—In most instances the cause of the nausea and vomiting that are occasionally associated with the menstrual periods is unknown. Regardless of this, a thorough study of the gastro-intestinal tract, including gastric analysis and the x-rays, should be made in this case to rule out a possible abnormal local condition. Likewise a rectal examination should be made to determine whether the internal genitalia are normal. If any abnormality is detected in the gastro-intestinal tract or the pelvic organs, it should of course be treated. If the investigation of the gastro-intestinal tract fails to reveal any abnormal condition and "the physical examination reveals nothing," the most likely cause of the cyclic nausea and vomiting is a psychic one. The treatment of such a condition is usually difficult. There is no logical reason for giving antuitrin-S, progestin or any other glandular extract to the patient except for its psychic effect.

SENSITIVITY TO PAINTS

To the Editor:—I have been consulted about a man who has been employed in a furniture factory as a painter. He applies the paint with a spray-gun. After he had worked in this factory for two years he developed a dermatitis. This would affect not only the skin but also his eyes, and his lips would swell in addition to the violent dermatitis elsewhere. He would discontinue his work for a short while and the condition would clear up. On his return to work there would be a recurrence of the trouble at varying intervals. This continued for approximately six months or longer and he gave up his work then and began doing something else in which he was not exposed to the fumes of paint. Since then he has had no further trouble. Is there any way in which the cause of this inflammation could be determined: that is, how could it be definitely established that it was due or not due to the paint? Please omit name.

M.D., North Carolina.

ANSWER.—Coating materials are one of the commoner causes of industrial dermatoses. The fact that this workman develops recurrences whenever he reuses paint and is free from involvement when away from the paint constitutes in itself suggestive proof of a cause and effect relationship.

Some substantial proof may be obtained by carrying out patch tests, using the paint as a test material. Various techniques have been recommended for patch test work. A simple procedure is now mentioned: On the flexor surface of the cleaned forearm a single drop of the paint material should be applied, covered with a 1 inch square of two or three layers of gauze and then

with a 2 inch square of rubber damming. The rubber damming should be held in place with adhesive tape, and perhaps a few turns of a bandage should be thrown around the entire area. A control test with a single drop of water or other innocuous material should be applied in similar fashion.

At the end of twenty-four hours an area of clear-cut inflammation at the point of application of the paint suggests the likelihood of responsiveness to that agent. However, in some instances it may be necessary for the patch test to continue in place for ninety-six hours. Conversely, it is true that some paint materials are so irritating that all persons respond before twenty-four hours, not because of sensitiveness but because of the direct irritating properties of the paint.

Should it be desirable to know the exact ingredient within the paint responsible for any positive reaction, a similar patch test may be carried out with individual constituents, for these constituents may be determined through analysis or through information derived from the manufacturer. However, most paints designed for one particular purpose, such as furniture coating, are likely to contain substantially the same ingredients.

ASTIGMATISM

To the Editor:—Can astigmatism of less than 1 diopter result from a blow on the eye, when there are no lacerations of the cornea? I refer to corneal astigmatism. A fellow practitioner states that only astigmatism of several diopters can result from a blunt object striking the eye. In my personal experience I have found several cases in which it was necessary to add a 0.25 or a 0.50 cylinder to lenses after the eye was injured by tennis balls or other objects. What is the incidence of unilateral astigmatism? Please omit name.

M.D., New Hampshire.

ANSWER:—In none of the standard text or reference books can there be found any mention of a low degree of astigmatism resulting from nonpenetrating injury. It is of course conceivable that a blunt injury might cause enough damage to the sclera to result in a scar formation with resultant contraction to produce corneal astigmatism of even a low degree. But an injury of such an extent would leave other visible stigmas. How does the questioner know that the low amount of astigmatism did not exist before the injury? Furthermore, it is well known that such low degrees of astigmatism are apt to be physiologic. Tscherning said "It is rare to find an eye completely free from astigmatism . . . and the limits of physiological astigmatism will vary from 0.5 D to even as high as 1.5 D."

Unilateral regular astigmatism is extremely rare, probably because there are so few nonastigmatic eyes. The numerical incidence is not known.

HAZARD TO EYE FROM ARC WELDER

To the Editor:—A man was exposed to an arc welder at rather close range, the length of a sledge hammer, for six or seven hours at intervals. He wore no goggles. This happened about eight weeks ago. The vision on the first examination was 20/70 in both eyes and he went through the usual external manifestations of an injury of that type with acute conjunctivitis and photophobia. The vision gradually improved to 20/30—2 and has remained stationary. The fundi appeared hyperemic. The disk has shown no pallor. The fundi appear normal at present. Fields taken three weeks after the injury were contracted down to from 10 to 15 degrees from fixation in both eyes. Color fields were contracted to within 5 degrees of fixation. There has been no improvement. Do you think you can give me any information as to whether an injury of this type is capable of producing such a contraction in the fields? What is the prognosis? In the literature I have available, cases are quoted in which there has been permanent injury to the nerve and cotoma, mostly central, but I can find no case in which damage has created a field picture of this nature or as extensive and symmetrical in the two eyes. The Wassermann reaction is negative and the sinuses are normal. Please omit name.

M.D., New York.

ANSWER:—There are no cases recorded in the literature of the end results of exposure to ultraviolet or even infra-red radiation, such as are recorded here. An exposure of the eye to an excess of radiant energy may well result in intra-ocular damage as well as superficial damage, but in such cases the lesions can be seen within three weeks after exposure. Thies reported a case of iritis following repeated exposures. Numerous cases of damage to the macular area of the retina have been reported by Knapp, Vogt, Goldman, Roy and others; but in these cases there has always been a central field defect and eventually a pathologic lesion appeared in the macula. Hypothetical damage to the choroid has been mentioned, but never with peripheral field loss.

The continued contraction of the visual field is highly suggestive of what has been termed traumatic neurosis. In fact, in the earlier days, it was considered pathognomonic. In view

of the lack of any subjective or objective evidence except the visual field contraction, suspicion must be directed toward a probable psychic element.

HOOKWORM IN DOGS

To the Editor:—Several months ago I was presented with a Chesapeake Bay dog, 3 months old, which was brought from the Eastern Shore of Maryland. Instructions were that the dog had been wormed several times and would require worming a few weeks after her arrival here. I was a few weeks late in doing this, and when the dog was wormed was surprised to learn that it was infested with hookworms. Since then the dog has been wormed three times at intervals of two weeks by the veterinarian, who used the carbon tetrachloride treatment, the last report being only a few worms. I also have about the grounds a small toy fox terrier, aged 4 years. To add to this a complicating factor, also on the grounds are three young children. The question is concerning the hookworms. I have knowledge of their habits but would like more definite information as to whether the dog can ever be entirely freed from them and what is the best advice from a health standpoint. If possible I should like to keep the dog, and even if I should get rid of the dog ought the ground receive special attention? I should like authoritative information on this.

A. J. KNAPP, M.D., East Liverpool, Ohio.

ANSWER:—There is no reason why a dog should not be entirely freed from hookworms. The carbon tetrachloride treatment might be supplemented with trichlorethylene or hexylresorcinol. It is entirely possible that the dog's continued infestation represents new infestation continuously acquired during treatment. If this is true, treatment during the winter when the larvae in the contaminated ground are killed will be effective. There is no need to worry about the dog's infestation from a health standpoint. The two common hookworm infestations of dogs are with *Ancylostoma caninum* and *Ancylostoma braziliense*. The latter infestation is of interest in medicine because the larvae from the soil invade the human skin and set up one type of creeping eruption. It is most likely, however, that this dog is infested with *Ancylostoma caninum*, which is as far as is known does not live any length of time in the skin of man and does not set up any disease process other than very transient papules. In any case it is not necessary that the ground should receive any attention and it is probable that in Ohio the winter is severe enough to eliminate the soil infestation.

TREATMENT OF LATENT SYPHILIS

To the Editor:—About four years ago a married white woman, aged 32, took her first-born child to the hospital for examination. A Wassermann blood test was strongly positive and tests made on both parents were likewise positive. Antisyphilitic treatment was begun promptly and continued over a period of about two years, when the child and the father became Wassermann negative. Treatment was discontinued, and subsequent tests have remained negative. Meanwhile another child was born and a blood test was positive. Treatment was instituted and this child likewise improved to the extent that the blood test taken about six months ago was negative. At the same time the mother's test was "doubtful positive." There was a difference in the treatment used with the mother, as arsenicals had to be discontinued after the first course of eight injections and two injections of the second course. Neoarsphenamine was used, I understand. Preparations of bismuth and mercury have been used continuously since, with rest periods, which the patient says were sometimes as long as four weeks between courses. She came to me for the first time five months ago. Because of the history of reactions following the use of arsenic, I felt restrained from trying this drug. I started her using the mercury rubs and iodides by mouth. She reported soon afterward that she had profuse salivation and nasal discharge and also some lacrimation, so these drugs were discontinued. I then began injections of bismuth (bismo-cymol) one injection every five days for nine injections, when a blood test was made, which was "doubtful positive." Another course of eight injections of this drug was carried out; then mercury rubs alone were used without apparent untoward reaction. These were continued daily for two weeks; now I am beginning another course of the bismo-cymol. I would appreciate your opinion relative to further therapy in this case and if, at the conclusion of this course of bismuth when I plan to check again the Wassermann reaction, it is positive (or doubtful positive) still, would it be prudent to try the arsenical drugs? Please omit name.

M.D., California.

ANSWER:—An effort should be made to determine why the mother's Wassermann reaction remains positive. This would necessitate a spinal fluid test and search of the cardiovascular system for evidence of aortitis or aortic regurgitation, as well as examinations for other evidences of visceral manifestations of syphilis. If such careful search fails to elicit any signs of the disease, the patient may then be placed in the group of latent syphilis. The treatment of patients with latent syphilis cannot be systematized in the same manner that the treatment of acute syphilis can be regimented. Accordingly, in the management of these patients, the treatment must be individualized. It would seem advisable to continue the bismuth therapy in this woman if the diagnosis of latent syphilis is justifiable, not

only because of her intolerance to arsphenamine but more especially because bismuth therapy in latent syphilis has resulted in serologic reversal to negative in the majority of the cases when it is given over a long period. The fact that she is still in the child bearing age is another reason for continuing treatment. If the cardiovascular and neurologic examinations, spinal fluid and other examinations are negative, even though on reexamination the Wassermann test of the blood is found to be positive, there is no need of jeopardizing the patient's future by giving her arsphenamine. If, however, the spinal fluid is strongly positive or if she should become pregnant again, small doses of arsphenamine of a brand not previously used might be given if great caution is exercised in its administration.

ETIOLOGY OF SUDDEN FALL IN HEMOGLOBIN

To the Editor:—A woman, aged 39, married, with two children, occasionally has a sudden fall in hemoglobin accompanied by fatigue. These attacks seem directly proportional to worry and fear. The hemoglobin may fall 25 per cent in twenty-four hours under mental stress. There is also a fall in blood pressure from 120/65 to 110/60. There is a slight fall in the red blood cell count, but not so marked. She recovers in a week under iron by mouth and liver intramuscularly. Without this treatment it takes three or four weeks. She has a moderate degree of chronic sinusitis and peribronchial infiltration; otherwise examination is negative. The basal metabolism is normal. Tests are negative for tuberculosis. Until recently I presumed that these attacks were due to hemolytic streptococci activated by fatigue, but now I feel that the picture changes too rapidly to be explained by bacterial invasion. Is it possible that the adrenal gland can be affected by worry and cause this sudden fall in hemoglobin? Any data you can furnish will be appreciated. Please omit name.

M.D., Indiana.

ANSWER.—It is difficult to visualize a situation of such an acute nature in which the drop in hemoglobin level is distinctly greater than that of the red blood cell level. As the actual figures for the latter are not included, one may assume that the percentage drop in the two levels is similar. Acute relapse or exacerbation of hemolytic anemia may be precipitated by worry or fear. Such a state may be recognized by the presence of icterus, increased fragility of the red blood cells to saline solutions and the occurrence of a greater than normal percentage of reticulocytes in the circulating blood. Relapses may be precipitated by worry or fear in patients with pernicious anemia, but these occur seldom so acutely and rarely do the blood levels return to normal without specific treatment. An abrupt drop in the hemoglobin and red blood cell levels may follow an attack of paroxysmal hemoglobinuria, which is, however, precipitated by exposure to cold. A positive Wassermann reaction is almost invariably present in the blood serum of a person so afflicted. Such a condition as that described cannot be accounted for on the basis of an altered function of the adrenal gland.

FLOCCULATION TEST FOR PREGNANCY

To the Editor:—Please describe the method of pregnancy determination by means of the ninhydrin flocculation test. How reliable is it? Please omit name.

M.D., Illinois.

ANSWER.—The ninhydrin test of pregnancy is based on the theory that the body reacts to the presence of foreign proteins by producing specific proteolytic ferments to destroy them. It is thus similar to the anaphylaxis reaction.

The occurrence of a reaction is indicated by the formation of diffusible products of protein hydrolysis, which may be detected with a substance called ninhydrin (triketohydrindene hydrate). Ninhydrin reacts with any alpha-amino acid, giving a blue or violet color. Or the change in optical rotation that occurs in a solution of peptone under the hydrolytic action of the serum may be observed.

Although this test was introduced by Abderhalden as a method of diagnosing pregnancy on the assumption that the chorionic cells of the placenta enter the maternal circulation and cause the formation of specific defensive ferments, it is known today that the test is not specific. The diagnostic value of the test for either clinical or scientific purposes must be considered as unproved. The protease activity of the serum seems to be increased in pregnancy, but simply shaking normal serum with kaolin or other foreign substances may cause it to give a strong reaction with placental antigen.

With the discovery and perfection of the Aschheim-Zondek test of pregnancy, which has an accuracy of about 98 per cent in pregnancy, hydatid mole and chorionepithelioma, there is no longer any need for experimentation with complicated and uncertain tests such as the ninhydrin test.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 1, page 1564.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II*. May 10-12, June 21-23, and Sept. 13-15. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral examinations for Group A and B applicants* will be held in Philadelphia, June 7-8. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Practical examination* will be given at Philadelphia in June. *Written examination* will be held in different centers of the United States and Canada in October. Chairman, Dr. Walter L. Biering, 406 Sixth Ave., Rm. 1210, Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Practical, oral and clinical examinations for Group A and B applicants* will be held at Atlantic City, N. J., June 7-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 7 and Chicago, Oct. 9. *All applications and case reports, in duplicate, must be filed at least sixty days before the date of examination.* Sec., Dr. John Green, 3720 Washington Blvd., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Atlantic City, N. J., June 8. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Philadelphia, June 7-8. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 7-8. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit, Mich.

AMERICAN BOARD OF PEDIATRICS: Atlantic City, N. J., June 6. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Illinois.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 2. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, N. J., June 4-6. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: *Oral examination.* Minneapolis, June 25-26. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Colorado January Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Jan. 6-8, 1937. The examination covered 8 subjects and included 170 questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Nine physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Texas School of Medicine.....		(1936)	87
Osteopath *			87

School	LICENSED BY ENDORSEMENT	Year Grad. of
University of Arkansas School of Medicine.....		(1930) Arkansas
Yale University School of Medicine.....		(1934) N. B. M. Ex.
George Washington University School of Medicine.....		(1911) Dist. Colum.
Rush Medical College.....		(1917) Iowa
State University of Iowa College of Medicine.....		(1927) Iowa
Johns Hopkins University School of Medicine.....		(1923) Maryland
University of Nebraska College of Medicine.....		(1924) Nebraska,
(1928) Illinois		
Long Island College Hospital.....		(1926) New York

* Licensed to practice medicine and surgery.

District of Columbia January Examination

Dr. George C. Ruhland, secretary, Commission on Licensure, reports the written examination held in Washington, Jan. 11-12, 1937. The examination covered 10 subjects and included 60 questions. An average of 75 per cent was required to pass. Nine candidates were examined, all of whom passed. Four physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Yale University School of Medicine.....		(1934)	87.8
George Washington University School of Medicine.....		(1935) 84.9,	92.2
Georgetown University School of Medicine.....		(1935)	82.8
Howard University College of Medicine.....		(1935)	83
Rush Medical College.....		(1934)	84.3
Syracuse University College of Medicine.....		(1930)	80.2
University of Pennsylvania School of Medicine.....		(1934)	85.3
McGill University Faculty of Medicine.....		(1932)	89.4

School	LICENSED BY ENDORSEMENT	Year Grad. of
Georgetown University School of Medicine.....		(1935) N. B. M. Ex.
School of Medicine of the Division of the Biological Sciences		(1935) N. B. M. Ex.

Book Notices

The Medical Value of Psychoanalysis. By Franz Alexander, M.D. Second edition. Cloth. Price, \$3. Pp. 278. New York: W. W. Norton & Company, Inc., 1936.

This book represents an attempt by Dr. Franz Alexander to "place psychoanalysis among the sciences." It is a well written book, stating in clear fashion the concepts which make up what Alexander chooses to call the "science of psychoanalysis." That the neurotic individual must learn to accept repressed psychologic facts, while the psychotic must learn to accept rejected external facts, constitutes one of his main theses. This is undoubtedly true, but certainly analysis is of no therapeutic avail in the treatment of the psychoses, and even in the treatment of the neuroses there is no scientific data by which to indicate analysis as the method of choice. One can accept his idea of the autonomic nervous system as a development serving to relieve the central nervous system of a portion of its work. This division of labor copes with the two fundamental problems of the organism, orientation in the external world and regulation of inner metabolic processes. The central nervous system relieved of its task of inner regulation thereby becomes more efficient in solving problems in external reality. Entire independence of the autonomic from the central nervous system cannot however be realized in the human body. There is a complicated interrelation between the two, which Alexander feels, properly enough, may be acted on by psychic as well as by organic stimuli.

The author's brief references to the psychoanalytic investigations of organic disease are interesting, although one may object to the suggestion that one's symptoms prove one's retreat to an infantile level of oral receptiveness and aggressiveness. No modern physician, whether he agrees with Alexander or not, will deny the psychogenic factor in the causation of many organic conditions, and since the author himself admits to a probable underlying constitutional or biologic defect in those cases which go on to the development of organic changes, even the strictest of the organicists can find no serious quarrel with him on that score. One can, however, quarrel with the limited approach of psychoanalysis, even to a determination of only the psychogenic factors of disease; life phenomena cannot all be fitted into so little or so rigid a framework.

Alexander suggests that psychoanalysis might be taught in the medical schools, although it should not have a place of dominance in the course of psychiatry. Freud has greatly added to knowledge and philosophy. His therapeutic contribution seems to lie mainly in the realm of technic.

This book by its simplicity of language tears away much of the mysticism with which analysis has surrounded itself—a good move. It makes the stand of the analyst clear and invites intelligent criticism, of which, no doubt, there will be and should be much.

Grundlagen einer neuen Therapieform der Tuberkulose. Von Dr. Med. Wilhelm Pfaff, Leiter der TBC-Therapieforschungsabteilung des Krankenhauses Tönsholde der L. V. A. Schleswig-Holstein, und Dr.-Ing. Willy Herold, physikochemiker, wissenschaftlicher Mitarbeiter. Paper. Price, 17.80 marks. Pp. 249, with 135 illustrations. Leipzig: Georg Thieme, 1937.

Although great strides have been made in the treatment of tuberculosis by the various methods of collapse therapy, there are a great number of cases, unfortunately, in which collapse therapy cannot be satisfactorily induced. With this in mind, the authors reconsidered the possibility of some other method of therapy whereby some form of medication could be administered which, by reaching the tuberculous focus through the blood stream, directly or indirectly, could favorably affect the tuberculous infection. To be effective, such a medicament must be able to reach the tuberculous focus. In view of the previous conception of the tuberculous focus as being an avascular structure, the writers conducted a series of experiments to verify or negate this conception. It is of the results of these experiments that this book treats. The first part of the book, by Pfaff, contains an excellent description of the anatomy and physiology of the lung, with particular reference to the anatomy and physiology of the capillary system. The modern views

concerning inflammatory reactions and responses both tuberculous and nontuberculous are gone into in detail with authoritative references. A section on allergic responses is included. Particular attention is given to the rôle of the reticulo-endothelial system. The second part of the book, by Pfaff and Herold, deals with their investigations on the mesenteries and lungs of living dogs. Both the normal and inflammatory, specific and nonspecific conditions were studied. The third part of the book, by Pfaff, describes several other research problems of a similar nature. The writers believe that they have satisfactorily established the fact that various dyes reach the tuberculous focus when injected in the blood stream and that the tuberculous structure is not an avascular one. They therefore believe that if a specific therapeutic agent can be found it can reach the tuberculous focus through the blood stream and can be used to overcome the tuberculous disease. They invite the development of such an agent.

Be Glad You're Neurotic. By Louis E. Bisch, M.D., Ph.D. Cloth. Price, \$2. Pp. 201. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1936.

It is unfortunate that one who has had the training in psychology and psychiatry which the author of the present volume has apparently had would permit himself to turn out such a volume. It is an extremely superficial rehash of the most elementary material on neuroses, psychoses and freudian mechanisms. The definitions are loose and in many places meaningless. The book scarcely deserves serious review. It consists of a number of chapters exhortative in their nature, each urging the individual to be glad that he is neurotic and to assure him that if he has guilt feelings, if he has bad dreams or insomnia, if he feels that he is going insane, he has nothing to worry about. The author gives the impression that the neurotic is anybody who is above normal in intelligence, whereas numerous neurotics are subnormal. He states baldly that a psychopath is one who is suffering from emotional inadequacy, not instability, and yet a large class of psychopaths examined in any clinic are the unstable psychopaths. He generalizes, for instance, in saying that the courts do not recognize the diagnosis of psychopath, whereas in most large cities this is not true. Specific examples of this sort of loose, unscientific and misleading information could be carried on endlessly. Toward the end of the book he has a chapter on glands, written in the best "Berman" fashion. It is a general, superficial discussion of glandular balance and imbalance, stressing the fact that the glands can be made useful or not as the individual desires. Before concluding the volume the author gives a test for an individual to give to himself to see whether he is neurotic. A person who is or is not neurotic, who gives himself this test, is bound to find some ideas that will disturb him. The real neurotic who might read this book, give himself the test and try to act out the principles involved would probably find himself in deep difficulties. Since it is a well known fact to psychiatrists that lectures embodying simple encouragement and simple exhortation are of little value, since most neuroses and mental difficulties are of deeper origin than the subject himself knows, this book must be pointless. Bisch concludes with a set of five rules: "Study yourself," "Stop reproaching yourself," "Be proud of what you are," "Turn your handicaps into assets," "Profit by your neurosis," "Be glad," which all in all make one compare the book to a football coach talking between the halves to a losing team that has been much outplayed and outweighed.

Wills Hospital Eye Manual for Nurses. By Gladys Elaine Cole, R.N., Chief Nurse, Wills Hospital, Philadelphia. Cloth. Price, \$1.75. Pp. 202, with 97 illustrations. Philadelphia & London: W. B. Saunders Company, 1936.

This booklet, by the chief nurse of Wills Eye Hospital, is just what the title says, a manual for nurses written in simple language without too many technicalities. On the whole, it is well done and contains much easily accessible valuable information. Particularly to be commended are the lists of surgical procedures with the instruments required for each and the proper methods of sterilization. Of course, each ophthalmic surgeon and each ophthalmic institute has its own technic, so that many of the minor points will be disputed. The illustrations, which are copied from various sources with due credit,

are not particularly good and could be elaborated and improved on to great advantage. Seven pages are given to an outline of the history of cataract operations, abstracted from Posey and Brown's book, which appears superfluous in a manual of this type. But there is a good glossary at the end, just before the complete index. The booklet is valuable for nurses in the special field of ophthalmology and the efforts of the authoress are to be highly commended.

Il glutathione: Sua importanza nella biologia generale e nella fisiopatologia umana. Dal Dott. Giuseppe Barbaro-Forleo, aiuto dell'Istituto di patologia speciale medica nella R. Università di Pavia. Prefazione del Prof. Luigi Zoja, direttore della clinica medica della R. Università di Milano. Paper. Price, 30 lire. Pp. 448. Pavia: Tipografia già cooperativa, 1936.

The contents of this monograph are divided as follows: (1) structure and biologic significance of glutathione; (2) glutathione content of organs and tissues of living organisms, and its variations under physiologic and pathologic conditions; (3) histochemical reactions of glutathione and methods for its indirect determination in tissues and biologic fluids. The second part is by far the most extensive. It gives a complete survey of the field of the occurrence of the tripeptide under physiologic and pathologic conditions. A complete bibliography brings this useful book to a close. On the whole, the monograph does not represent a mere compilation of literature references; the vast material has been treated with a full appreciation of the problems involved and with fine critical acumen aided by the author's rich experimental experience in the field. It is to be regretted that the book is so far available only in the Italian original, which fact might restrict its use among research workers for linguistic reasons. It is to be hoped that an English translation will soon be forthcoming.

Recent Advances in Radiology. By Peter Kerley, M.D., B.Ch., D.M.R.E., Assistant Radiologist, Westminster Hospital, London. Second edition. Cloth. Price, \$5. Pp. 322, with 178 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1936.

The author's effort to keep this volume abreast of the advances in radiology has been successfully carried out in that the work really represents what its name implies. Extensive alterations and additions to the chapter on bone diseases have taken account of the remarkable advances in calcium metabolism and endocrine diseases as reflected in roentgenograms. Enlargements have been made in the chapters on the skull, the gastro-intestinal tract and the lungs. The chapters on the heart, the biliary tract and the renal tract have been entirely rewritten. Of necessity in a work of this size there is much condensation, but all the important radiologic advances are described. The illustrations have been increased by seventy new contributions; some of the old ones have been replaced by better and more characteristic specimens. As a record of the recent advances in radiology this book can be recommended.

The Diagnosis and Treatment of Chronic Diseases of the Respiratory Tract, with Especial Reference to the Lesions of the Trachea, Bronchi, Lungs, Pleura and Diaphragm. By Elmer H. Funk, M.D., Physician to the White Haven Sanatorium, Philadelphia. Revised by Burgess Gordon, M.D., Medical Director and Physician-in-Charge, Department of Diseases of Chest, Jefferson Hospital, Philadelphia. Henry A. Christian, M.D., Sc.D., LL.D., General Editor of the Series. [Reprinted from Oxford Monographs on Diagnosis and Treatment.] Cloth. Price, \$8. Pp. 618, with 182 illustrations. New York: Oxford University Press, 1936.

This volume is a reprint from Oxford Monographs for 1929. It was written by the late Dr. Funk, clinical professor of medicine at Jefferson Medical College, and revised by Dr. Gordon. The book is divided into four parts: general considerations in the diagnosis and treatment of diseases of the lower respiratory tract (eighty-nine pages), diseases of the trachea, bronchi and lungs (250 pages), diseases of the pleura (eighty-two pages) and pulmonary tuberculosis, new growths, and diseases of the diaphragm (179 pages). It is unfortunate that the revision still contains the old references to the literature used in the Oxford Monograph for 1929. In the entire book there are only nine references to publications on diseases of the respiratory tract later than 1929. As an illustration of the failure of the references to keep abreast of the times it is noted that on page 255 a footnote on pneumoconiosis (silicosis) mentions "the recent monograph on pneumoconiosis (silicosis) by

H. K. Pancoast and E. P. Pendergrass (P. B. Hoeber, Inc. New York, 1926)." The same criticism applies to the chapter on pulmonary new growths and most of the other subjects. Also the text needs to be brought down to date in many of the chapters. On page 425 appears the statement "The present conception of the pathogenesis of tuberculosis indicates that every individual under the ordinary conditions of our civilization is infected soon after birth." Recent investigations indicate that only about 30 to 40 per cent of grammar school and college students have a primary complex of tuberculosis. Let us hope that in the next edition the numerous developments of the past eight years will be included. The book is well printed in large type and has many excellent illustrations.

The Emancipist: An Historical Drama. In Three Acts. By Maj.-Gen. John Macquarie Antill, C.B., C.M.G., and his daughter, Rose Antill-de Warren. Cloth. Price, 3s. 6d. Pp. 165. Sydney: Angus & Robertson, Ltd., 1936.

The chief medical interest of this volume lies in the fact that Dr. William Redfern, surgeon in the navy, convict, and friend of Macquarie, is portrayed as its hero. His arrest and conviction on the basis of sympathy for mutineers, his arrival in Sydney in 1803, and his development as leading surgeon in the colony make him an interesting medical historical character. A note indicates that this is the first Australian historical play to be published in book form.

Gestes et procédés techniques de chirurgie générale. Par Jean Berger, chirurgien des hôpitaux de Paris. Paper. Price, 32 francs. Pp. 137, with 124 illustrations. Paris: Masson & Cie, 1936.

In this little volume Berger has made a commendable effort, by word and illustration, to convey the manual movements and general procedures of surgery to the mind of the beginner. It is difficult to feel much enthusiasm for a work of this type. The surgical intern will learn these procedures in the operating room at the elbow of an accomplished surgeon far more accurately and far more quickly than he can hope to by perusal of a book. The illustrations, while instructive, are of second grade. Perhaps the best chapter is the third, in which the author lists the qualifications of an expert surgeon.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Harrison Narcotic Act: Prescribing for Addicts.—The city of Los Angeles established a clinic wherein narcotic addicts whose addiction had become pathologic could, after being examined by physicians and certified, receive a quantity of narcotics. Subsequently the clinic was closed and the defendant, a physician, was requested by the city health officer "to take over the prescribing for these addicts who had been certified by the clinic." For this service the defendant was compensated by the city. After several months during which the defendant prescribed for clinic patients, indictments were returned against him and a druggist charging, in effect, that they in violation of the Harrison Narcotic Act sold and dispensed unlawfully certain quantities of morphine sulfate not in good faith and not in the course of their professional practice. The indictments were dismissed as to the druggist, and the case against the defendant was heard before the United States district court, southern district, California, central division, without a jury. The indictments charged specifically that the defendant during a period of approximately seven weeks prescribed 2,489 one-half grain tablets of morphine sulfate for three former clinic patients, and that during the same period he prescribed 1,233 one-half grain tablets of morphine sulfate for a nonclinic addict, all not in good faith and not in the course of professional practice.

The constitutionality of the Harrison Narcotic Act, said the court, has been upheld on several occasions solely on the ground that it is a revenue measure. If it should be subject to the

construction that it regulates either the sale of narcotics within a state or the practice of medicine, its constitutionality could not be upheld. *Linder v. United States*, 268 U. S. 5, 45 S. Ct. 446; *United States v. Doremus*, 249 U. S. 86, 39 S. Ct. 214; *Nigro v. United States*, 276 U. S. 332, 48 S. Ct. 388. The Linder case, continued the court, laid down the rule that the act does not attempt to limit the quantity of narcotics a physician may prescribe for an addict. Furthermore, in *Strader v. United States*, 72 F. (2d) 589, the United States circuit court of appeals, tenth circuit, said in reference to the Harrison Narcotic Act:

The statute does not prescribe the diseases for which morphine may be supplied. Regulation 85 issued under its provisions forbids the giving of a prescription to an addict or habitual user of narcotics, not in the course of professional treatment, but for the purpose of providing him with a sufficient quantity to keep him comfortable by maintaining his customary use. Neither the statute nor the regulation precludes a physician from giving an addict a moderate amount of drugs in order to relieve a condition incident to addiction, if the physician acts in good faith and in accord with fair medical standards.

The act, continued the court, does not regulate the frequency of prescriptions nor does it require that dispensing by physicians be limited to an immediate need. It does not forbid a physician to give to a patient a large prescription for self administration under certain circumstances—warranted either by impossibility of hospitalizing the patient, or other conditions, or by the desire to continue him at his work. The courts have laid down no dogmatic rule to determine what is good or bad professional practice. That must be established by the same rule by which the courts determine whether malpractice exists in a certain case. The law punishes not bad judgment in a physician but bad faith. Circumstances may arise where, from the unexplained number of prescriptions, the unlimited amount, and the relationship of the parties, an inference of bad faith might be drawn without any other evidence. The law does not compel such a conclusion, however, to be drawn in all cases in which the prescription is not limited to one dosage or several dosages. Where there is an explanation, the court must determine whether or not there was good faith, in the light of the expert testimony, of the testimony of the defendant-physician himself, and of all the circumstances in the case.

The evidence in the present case, the court pointed out, did not show the case of a physician who, looking for gain, sought to capitalize his knowledge by preying on unfortunate addicts. It was undisputed that the city health officer asked the defendant to take over the work of the clinic and that he was paid by the city. Under such circumstances, the court thought, to find that the defendant violated the law merely because the law enforcement authorities thought he was not so careful as he might have been with reexaminations and in issuing drugs to persons who in their opinion should have been hospitalized would do violence to the very spirit of the law. This does not mean, the court said, that a person might not be guilty of an offense under the act although he followed the advice of the city medical authorities. Such officials cannot give absolution for criminal offenses any more than can law enforcement officers, by placing their own interpretation on the law, create an offense which does not exist. A physician is not punishable under the Harrison Narcotic Act, however, unless the evidence indicates bad faith and a failure to follow accepted medical practices. The court thought that too much attention had been given in the case to the fact that the chief of police of Los Angeles stated that under no circumstances could prescriptions be issued to the clinic addicts without reexaminations, and that the local narcotic agent made a similar statement. Neither the chief of police nor the federal authorities, the court said, can dictate to a physician the manner in which he may treat patients. There was expert medical testimony to the effect that the treatment administered by the defendant was proper under the circumstances and conformed to the high professional ideal of the Hippocratic Oath. This oath, the court said, makes it the duty of a physician to relieve suffering and to use his own judgment in doing so. He should not be punished when he lives up to it.

For the reasons stated, the court found the defendant not guilty of any of the offenses with which he was charged.—*United States v. Anthony*, 15 F. Supp. 553.

Society Proceedings

COMING MEETINGS

- American Medical Association, Atlantic City, N. J., June 7-11. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.
- American Academy of Pediatrics, New York, June 3-5. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.
- American Academy of Tuberculosis Physicians, Atlantic City, N. J., June 7-8. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.
- American Association for the Study of Goiter, Detroit, June 14-16. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.
- American Association for Thoracic Surgery, Saranac Lake, N. Y., May 31-June 2. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Quebec, Canada, June 14-16. Dr. Henry L. Sanford, 1621 Euclid Ave., Cleveland, Secretary.
- American Bronchoscopic Society, Atlantic City, N. J., June 2. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.
- American Dermatological Association, Sky Top, Pa., June 3-5. Dr. Fred D. Weidman, 1930 Chestnut St., Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 7-8. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.
- American Gynecological Society, Swampscott, Mass., May 31-June 2. Dr. Richard W. TeLinde, 1201 N. Calvert St., Baltimore, Secretary.
- American Laryngological Association, Atlantic City, N. J., May 31-June 2. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.
- American Laryngological, Rhinological and Otolological Society, Atlantic City, N. J., June 3-5. Dr. C. Stewart Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secretary.
- American Neurological Association, Atlantic City, N. J., June 3-5. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. J. Milton Griscom, 255 South 17th St., Philadelphia, Secretary.
- American Orthopedic Association, Lincoln-Omaha, Neb., June 2-4. Dr. Ralph K. Gormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, New York, May 27-28. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.
- American Physiotherapy Association, St. Paul, June 27-July 1. Miss Jefferson I. Brown, Tichenor Hospital School, Long Beach, Calif., Secretary.
- American Proctologic Society, Atlantic City, N. J., June 6-8. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Pittsburgh, May 10-14. Dr. William C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.
- American Radium Society, Atlantic City, N. J., June 7-8. Dr. William P. Healy, 121 East 60th St., New York, Secretary.
- American Society of Clinical Pathologists, Philadelphia, June 2-6. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.
- American Surgical Association, New York, June 3-5. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.
- American Therapeutic Society, Atlantic City, N. J., June 4-5. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Minneapolis, June 29-July 1. Dr. Clyde L. Deming, 789 Howard Avenue, New Haven, Conn., Secretary.
- Associated Anesthetists of the United States and Canada, Atlantic City, N. J., June 7-8. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary-General.
- Association for the Study of Internal Secretions, Atlantic City, N. J., June 7-8. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Connecticut State Medical Society, Bridgeport, May 19-20. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- Georgia Medical Association of, Macon, May 11-14. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.
- Illinois State Medical Society, Peoria, May 18-20. Dr. Harold M. Camp, 202 Lahl Bldg., Monmouth, Secretary.
- Iowa State Medical Society, Sioux City, May 12-14. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
- Maine Medical Association, Belgrade Lake, June 20-23. Miss Rebekah Gardner, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, June 1-3. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.
- Medical Library Association, Richmond, Va., May 23-26. Miss Janet Doe, 2 East 103d St., New York, Secretary.
- Medical Women's National Association, Atlantic City, N. J., June 6-8. Dr. F. S. Fetterman, 7047 Germantown Ave., Philadelphia, Secretary.
- Mississippi State Medical Association, Meridian, May 11-13. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Missouri State Medical Association, Cape Girardeau, May 10-12. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.
- National Tuberculosis Association, Milwaukee, May 31-June 3. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.
- Nebraska State Medical Association, Omaha, May 10-13. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.
- New Hampshire Medical Society, Manchester, May 18-19. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Mexico Medical Society, Clovis, May 13-15. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York Medical Society of the State of, Rochester, May 24-26. Dr. Peter Irving, 2 East 103d St., New York, Secretary.
- North Dakota State Medical Association, Grand Forks, May 16-18. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.
- Oklahoma State Medical Association, Tulsa, May 10-12. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.
- Rhode Island Medical Society, Providence, June 2-3. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
- South Dakota State Medical Association, Rapid City, May 24-26. Dr. John F. D. Cook, Langford, Secretary.
- Texas State Medical Association of, Fort Worth, May 10-13. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.
- Vancouver Medical Association Summer School, Vancouver, B. C., June 22-25. Dr. J. R. Naden, 203 Medical-Dental Bldg., Vancouver, Secretary.
- West Virginia State Medical Association, Clarksburg, May 24-26. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American J. Digest. Dis. & Nutrition, Fort Wayne, Ind.

4: 1-82 (March) 1937

- Dietary Principles in Treatment of Gastro-Intestinal Diseases. A. F. R. Andresen, Brooklyn.—p. 1.
Interrelationships of Pancreas with Other Endocrine Organs in Diabetes. H. J. John, Cleveland.—p. 4.
*Blood Pressure Changes During Defecation. E. W. Klinefelter, York, Pa.—p. 12.
Etiology of Gallstones: II. Relationship of the Hydrogen Ion Concentration of Bile to Formation and Dissolution of Gallstones. M. Feldman, S. Morrison and J. C. Krantz Jr., Baltimore.—p. 13.
Peptic Ulcer in Children: Follow-Up Study of Cases Reported Previously and Report of Additional Cases. L. Bloch and A. M. Serly, Chicago.—p. 15.
Colon Motility: Experimental Study of Colon in Dog. A. Slive and S. J. Fogelson, Chicago.—p. 17.
Value of Histidine in Prevention of Experimental Ulcer in Dogs. D. J. Sandweiss, H. C. Saltzstein and W. S. Glazer, Detroit.—p. 20.
Experimental Production of Polyposis of Colon in Rats. F. Hoelzel and Esther Da Costa, Chicago.—p. 23.
Clinical Disorders with Associated Hepatic and Renal Manifestations, with Especial Reference to So-Called "Hepatorenal Syndrome." S. S. Lichtman and A. R. Sohval, New York.—p. 26.
Physiologic and Clinical Study of Patients After Subtotal Gastrectomy. A. A. Strauss, S. Strauss, P. Levitsky, L. Scheman, E. E. Seidmon, R. A. Arens, J. Meyer and H. Necheles, Chicago.—p. 32.
Pathogenicity of Four Strains of Endamoeba Histolytica from Chicago. H. E. Meleney and W. W. Frye, Nashville, Tenn.—p. 37.
*Relationship Between Oral and Gastric Bacterial Flora. M. Hood and L. Arnold, Chicago.—p. 40.
Atrisia of Pylorus. R. J. Bennett Jr., Edmonton, Alta.—p. 44.

Blood Pressure Changes During Defecation.—During 1931 Klinefelter attended six patients who died suddenly from cerebral hemorrhage while they were attempting to move their bowels. Since then he has examined more than 300 male patients by measuring their blood pressures during defecation. A significant rise in blood pressure was observed. With a corresponding degree of stress, this rise averaged 20/15. But the greater the degree of stress, the higher the rise in blood pressure. In one patient this effort produced an increase amounting to 110/88. Certainly an increase in blood pressure such as this would appear to add considerably toward the danger of rupture of the wall of a diseased blood vessel. Examination of patients affected with different diseases revealed nothing specific; the blood pressure changes did not differ markedly from the average. Alterations of blood pressure in disease seemed different only so far as the disease interfered with the ability to strain.

Relation Between the Oral and the Gastric Flora.—Hood and Arnold classify the organisms from cultures of the mouth and stomach and determine the relation which these bear to one another. They observed the effect of continuous entrance of the exogenous flora and studied the protective mechanism by which the body defends itself against this entrance. Cultures from the mouth and stomach show a striking similarity in bacterial flora. This must mean that the oral flora is present in the stomach either as a transient or as an established inhabitant. Although these micro-organisms which are continually washed into the stomach are nonpathogenic for the most part, there is always the possibility of introducing a virulent type. *Bacillus coli* was found in only three of twenty-five gastric aspirations. Even in these cases the salivary flora was present in greater concentration than were the coli types. By means of a test organism it was found that bacteria may remain active in the oral cavity for three and one-half hours after contact with the mucosa and structures within the cavity. This gives a long period during which organisms are continuously passed into the stomach. Thus if pathogenic bacteria have been the contaminants there will be not only the

original infecting material for disinfection by the gastric juice but also this smaller but continuous inoculation over a long period during which time there may be fluctuations in the gastric acidity. Simultaneous cultures made from the contents of the mouth and stomach showed that the average disappearance rate of test organisms from the mouth was two and one-half hours and from the stomach one and one-fourth hours. Any diminution in the number of bacteria was brought about as readily by rinsing the mouth with physiologic solution of sodium chloride as with a disinfectant. Evidently the diminution in the numbers of bacteria is due to the mechanical washing away of organisms rather than to the disinfecting powder of the fluid itself. Although saliva contains many micro-organisms, the bacterial flora of the stomach was not noticeably influenced by diverting the flow of saliva from the stomach for a period of two hours.

American Journal of Pathology, Boston

7: 105-220 (March) 1937

- Physicochemical Factors Influencing Red Cell Sedimentation Rate.* K. Yardumian, Pittsburgh.—p. 105.
Bronchiogenic Carcinoma. O. A. Brines and J. C. Kenning, Detroit.—p. 120.
Evaluation of Results of Flocculation Tests for Syphilis in Recent American Conference: Outline of Studies for Standardization of These Tests. B. S. Kiene, Cleveland.—p. 134.
Concerning Titration of Antigens for Complement Fixation Tests, with Especial Reference to Syphilis. J. A. Kolmer, with assistance of Carola E. Richter and Elsa R. Lynch, Philadelphia.—p. 155.
Stormy Fermentation of Milk in Recognition of *Clostridium Welchii* in Wounds. C. Lenore Robinson and W. D. Stovall, Madison, Wis.—p. 172.
Photographic and Photomicrographic Technic. C. A. Hellwig, Wichita, Kan.—p. 184.
Chancroidal Vaccine: I. Method of Preparation: II. Its Diagnostic and Therapeutic Value. R. B. Greenblatt and E. S. Sanderson, Augusta, Ga.—p. 193.

Archives of Pathology, Chicago

23: 299-456 (March) 1937

- Skin Grafting as Method of Determining Biologic Effect of Radiation. J. Ungar Jr. and S. Warren, Boston.—p. 299.
Experimental Studies on Primary Changes During Formation of Thrombi. J. Tannenbergs, Albany, N. Y.—p. 307.
Production of Fat Granules and of Degeneration in Cultures of Adult Tissue by Agents from Blood Plasma. II. S. Simms and Nettie P. Stillman, New York.—p. 316.
Fat Deposition in Arteries Treated in Vitro with B Factor. II. S. Simms and Nettie P. Stillman, New York.—p. 332.
*Connective Tissue Reaction in Multiple and in Diffuse Sclerosis. L. S. King, Princeton, N. J.—p. 338.
So-Called Congenital Bicuspid Aortic Valve. L. Gross, New York.—p. 350.
Studies in Histochemistry: XI. Vitamin C in Testes in Relation to Anatomic and to Functional Changes. G. R. Biskind and D. Glick, San Francisco.—p. 363.
Role of Adrenal Cortex in Production and Utilization of Vitamin C: Its Influence on Structure of Teeth in Albino Rat. D. Perla and Marta Sandberg, New York.—p. 372.
Photosensitization and Photodynamic Diseases of Man and Lower Animals. F. P. Mathews, Alpine, Texas.—p. 399.

Connective Tissue Reaction in Multiple Sclerosis.—In every one of his thirteen cases of multiple sclerosis, King found networks of argyrophil connective tissue fibers growing diffusely into the parenchyma. The extent of this growth varied from case to case and even from plaque to plaque. In part the reticulin nets grew from blood vessels of small caliber, predominantly capillaries and precapillaries; in part they appeared to grow independently of preexisting reticulin. Diffuse reticulin invasion may be one of the early pathologic reactions in multiple sclerosis and is found not only in the white matter but in the cerebral cortex and other gray masses. The growths appear to be definitely related to the disintegration of myelin, with the intensity of the process playing some part. Such reticulin nets bear no correlation with the degree of gliosis, of axis cylinder destruction or of perivascular infiltration. This type of connective tissue proliferation takes place independently of fibroblasts. Eleven cases of diffuse sclerosis studied can be divided into three groups, of which the first showed no reticulin nets, the second a slight or moderate growth rather similar to that in multiple sclerosis and the third a profound growth, showing qualitative as well as quantitative differences from that in multiple sclerosis. The term diffuse sclerosis does not represent a unitary condition.

Johns Hopkins Hospital Bulletin, Baltimore

60: 159-222 (March) 1937

- Snake Venoms: III. Immunity. C. H. Kellaway, Melbourne, Victoria, Australia.—p. 159.
- *Essential Immunizing Antigen of Typhoid Bacillus. L. D. Felton and F. B. Wakeman, Baltimore.—p. 178.
- Preocious Puberty Following Measles Encephalomyelitis and Epidemic Encephalitis: Discussion of Relation of Intracranial Tumors and Inflammatory Processes to Syndrome of Macrogenitosomia Praecox. F. R. Ford and Harriet Guild, Baltimore.—p. 192.
- Reflex Vesical Contraction in Cat After Transection of Spinal Cord in Lower Lumbar Region. O. R. Langworthy and F. H. Hesser, Baltimore.—p. 204.

Essential Immunizing Antigen of Typhoid Bacillus.—Felton and Wakeman's study confirms the earlier results of Douglas and Fleming that the fat-free dried cells are apparently superior to liquid vaccine. Several explanations of this finding suggest themselves: (1) that the method of preparation of a liquid vaccine may decrease some of its activity, (2) that the lipoids present may actually retard or inhibit the development of the active component and (3) that there may be some other product developed during the growth of the bacilli which in some manner paralyzes the immunizing mechanism. In this preliminary report tests were made only on fractions of the cell that may be considered polysaccharide in nature. It would appear that the essential immunizing antigen was present in all samples studied, but in varying amounts. The fractions low in nitrogen content and high in dextrose number were the strongest in active immunizing power. From the fact that, when alkali was used during the process of isolation, all fractions were weakly if at all antigenic (active immunity) it would appear that there may be both active and inactive forms of this fraction of the typhoid organism. In other words, strong alkali destroys the immunizing capacity. However, it is not to be inferred that this alteration necessarily follows the saponification of any acetyl groups present in the molecule. It is concluded that at least for mice there is an essential active immunizing antigenic fraction of the typhoid organism. This organism may therefore be added to the list of organisms which may be so fractionated, namely pneumococcus, aertrycke as found by Boivin, Mesrobian and Mesrobian and later by Raistrick and Topley, and Brucella, from which Pennell and Huddleson reported the isolation of a crystalline b-anthraquinone carboxylic acid which exhibits an active antigenicity.

Journal of Nervous and Mental Disease, New York

85: 249-372 (March) 1937

- Thalamus in Relation to Cerebral Cortex. A. E. Walker, New Haven, Conn.—p. 249.
- Schizophrenia in a Child: Report of Case. L. Reznikoff, Secaucus, N. J.—p. 262.
- Psychiatric Manifestations Associated with Disease of Central Nervous System, with Especial Reference to Multiple Sclerosis: Point of View. L. H. Cohen and A. J. Gavigan, Worcester, Mass.—p. 266.
- Application of Modified Dehydration Regimen for Institutionalized Epileptics. E. A. Whitney, Elwyn, Pa.—p. 283.
- Nature of Rosenthal Fibers. A. F. Liber, New York.—p. 286.
- Sodium Amytal: Effects on Oxygen Consumption Rate in Psychoses. L. B. Shapiro, Elgin, Ill.—p. 305.

New England Journal of Medicine, Boston

216: 371-410 (March 4) 1937

- *Genesis of Thyroid Protein. W. T. Salter and J. Lerman, Boston.—p. 371.
- Principles of Parathyroid Surgery. E. D. Churchill, Boston.—p. 376.
- Factors Governing Calcium Equilibria in the Body. A. B. Hastings, Boston.—p. 377.
- Frequency, Recognition and Treatment of Chronic Subdural Hematomas. G. Horrax and J. L. Poppen, Boston.—p. 381.
- Femoral Hernia. F. G. Balch Jr., Boston.—p. 385.

Genesis of Thyroid Protein.—Salter and Lerman discuss the action of iodine in the hyperthyroid animal or patient from the standpoint of the chemical effect that it produces in the gland itself. The administration of iodine in hyperthyroidism must produce a profound disturbance in the manufacture of hormone. The effect of iodine therapy is intimately related to the genesis of thyroid protein. The most striking histologic effect resulting from the administration of iodine to a patient with exophthalmic goiter is the rapid filling up of the follicles with newly formed colloid. As a result of this phenomenon the clinician feels the gland becoming smaller and harder in

the course of a few days. Coincidentally, the histologist finds that many of the follicles have become spheroidal and so filled with eosinophilic material that they might be mistaken at first sight for normal thyroid or colloid goiter tissue. At the same time the biochemist is able to demonstrate a rapid accumulation of iodine within the gland, which may increase the iodine content tenfold or more. Thus, both chemical and microscopic studies emphasize the appearance of new-born thyroid protein. Given elementary iodine and the ordinary constituents of protein, the organism is able to manufacture thyroglobulin at a rapid rate. Of the various factors involved in this complicated process, the action of enzymes is most important. In order to simulate the natural production of thyroid protein, it would be ideal to start with elementary iodine and simple amino acids. Diiodotyrosine peptone was the substance used as the starting point in the artificial production of thyroid protein. It would be proper also to use for this purpose an enzymic preparation derived exclusively from thyroid tissue. The principle is one of reversible reaction in accordance with the mass law. An enzyme, being merely a catalyst, facilitates the progress of a reversible chemical reaction in either direction. The actual course in any given instance is determined by such conditions as concentration, solubility and temperature. The formed product was an albuminous substance, which resembled natural thyroglobulin in many respects. In terms of iodine, the yields varied from 15 to 40 per cent of the original starting material. The chemical properties of this artificial protein are similar to those of natural thyroglobulin. Actual curves presenting the rise in the basal metabolic rate of individual patients with myxedema when fed this artificial protein show an average daily rise in metabolism of 2.6 per cent.

Oklahoma State Medical Assn. Journal, McAlester

30: 39-76 (Feb.) 1937

- Cranio-cerebral Injuries. H. Wilkins, Oklahoma City.—p. 39.
- Differential Diagnosis of Fifth Nerve Neuralgia. J. D. Herrmann, Oklahoma City.—p. 43.
- Urologic Backache. A. R. Russell, McAlester.—p. 47.
- Undulant Fever (Malta Fever). M. R. Beyer, Oklahoma City.—p. 50.
- Choice of Anesthesia. H. B. Stewart, Tulsa.—p. 54.
- Physical and Spiritual Healing. E. H. Eckel Jr., Tulsa.—p. 57.

Philippine Islands Med. Association Journal, Manila

17: 1-62 (Jan.) 1937

- Annual Conventions. S. Osmeña.—p. 1.
- For a Strong National Medical Association. R. Abriol, Manila.—p. 7.
- *Cerebellar Abscess, with Diffused Suppurative Labyrinthitis: Report of Case That Recovered. A. S. Fernando and G. de Ocampo, Manila.—p. 13.
- Hernia of Bladder. R. L. Teopaco, San Fernando, Pampanga.—p. 17.
- Nerve Degeneration Among Filipinos. Helen F. Burn, Manila.—p. 25.

Cerebellar Abscess, with Diffused Suppurative Labyrinthitis.—Fernando and de Ocampo report a case of otogenic cerebellar abscess with recovery. The patient was admitted with symptoms definitely pointing to labyrinthine disturbance. The hearing and caloric tests showed that the labyrinth was completely irresponsive; but also there were phenomena which could not be explained by this condition alone. The direction of the nystagmus, which was toward the diseased ear and which was not to be expected in a destroyed labyrinth, the continuous headache and insomnia and the mode of falling made the authors suspect some intracranial involvement besides the diffuse suppurative labyrinthitis. This was strengthened by the presence of slight rigidity of the neck on the day before operation, which prompted the lumbar puncture that showed serous meningitis. The meningitis was more or less of the irritative or protective variety. So their suspicions were narrowed down to a localized intracranial suppuration, more specifically an abscess of the temporal lobe or the cerebellum. Symptoms and signs of involvement of the temporal lobe (left side) were lacking. The presence of cerebellar abscess was then quite evident, and on the morning of the operation (Newman-Jansen endocranial technic) additional though vague localizing symptoms appeared in the form of weakness of the grip of the left hand and adiadokokinesia. When labyrinthitis and cerebellar abscess occur together the symptoms are confusing. The patient was kept in the hospital for almost four months. Maximal drainage and minimal traumatism were

assured by cautious insertion of a rubber drain. The pus obtained from the abscess was sterile, probably owing to the disintegration of the bacteria by some unfavorable tissue reaction. The route of infection must have been through the labyrinth. Lumbar puncture made three months after operation revealed normal spinal fluid, showing that the patient had recovered completely from the otogenic serous meningitis.

Public Health Reports, Washington, D. C.

52: 295-324 (March 12) 1937

Distribution of *Brucella Melitensis* Variety *Melitensis* in the United States. Alice C. Evans.—p. 295.
Pulmonary Tumors in Mice: II. Influence of Heredity on Lung Tumors Induced by Subcutaneous Injection of Lard-Dibenzanthracene Solution. H. B. Andervont.—p. 304.

Virginia Medical Monthly, Richmond

63: 711-770 (March) 1937

The Endocrines in Medicine. E. L. Alexander, Newport News.—p. 712.
The Endocrines in Gynecology and Obstetrics. C. J. Andrews, Norfolk.—p. 719.
Surgery and Endocrines. E. P. Lehman, Charlottesville.—p. 723.
*Caution in Use of Protamine Insulin. W. R. Jordan, Richmond.—p. 730.
Dr. Hunter Holmes McGuire: Surgeon, Teacher, Author and Man. M. J. Payne, Staunton.—p. 731.
Tapeworm Infestation Successfully Treated by Instillation of Medicine Through a Duodenal Tube. P. F. Prather, Hagerstown, Md.—p. 734.
Pneumonia Over a Period of Twenty-Five Years. F. H. Smith, Abingdon.—p. 735.
Important Points in Treatment of Pneumonia with Specific Serum. H. F. Dowling, Washington, D. C.—p. 739.
Pneumonia in Infants and Children. S. Newman, Danville.—p. 743.
Pneumonia: Especially Eighty Diathermed Cases. J. O. Fitzgerald Jr., Richmond.—p. 746.

Caution in the Use of Protamine Insulin.—In discussing the reactions from the use of protamine insulin, Jordan mentions that of the seventeen patients treated unconsciousness occurred in six and in three instances the duration of the reaction was far longer after the initiation of treatment for the hypoglycemia than is usually true with regular insulin. Although carelessness in carrying out the advised treatment led to these severe reactions in four of these patients, the errors were glaring in only two instances, and in four of the six cases mild reactions occurred at similar times even when directions were followed. These hypoglycemic reactions have been troublesome almost entirely in the cases being tried on a single daily injection of protamine insulin alone. Enough protamine insulin to take care of the three meals is usually too much for the fasting period during the night. For this reason the author has prescribed a bedtime lunch and the taking of the breakfast fruit as soon as the patient awakes in the morning. In other cases this has been insufficient, and reduction of the amount of protamine insulin was necessary. To compensate for this the injection of a few units of regular insulin just prior to breakfast was made. Local reactions with redness, swelling, pain and tenderness at the site of injection have occurred in several cases. Occasionally a patient will be unable to take food, owing to nausea, vomiting or unconsciousness occurring shortly after the injection of the new insulin. It then becomes necessary to supply food repeatedly throughout the day and night by artificial routes. Indiscriminate use of protamine insulin should be avoided because of its powerful and prolonged action.

Yale Journal of Biology and Medicine, New Haven

9: 287-392 (March) 1937

Dr. John Walton, Yale 1720. E. Caulfield, Hartford, Conn.—p. 287.
Lateral Roentgenometry of Pelvis: Newly Modified Technic. H. Thoms and H. M. Wilson, New Haven, Conn.—p. 305.
Toxemias of Pregnancy. J. P. Peters, New Haven, Conn.—p. 311.
Effect of Hypothermic States on Reflex and Central Nervous System Activity. J. B. Hamilton, Albany, N. Y.—p. 327.
Tetany in the New-Born. L. E. Farr, New Haven, Conn.—p. 333.
Studies of Apexes of Teeth: Correlation of Bacteriologic, Roentgenologic and Gross Anatomic Findings in Human Necropsies: Part II. Results. L. W. Burket, New Haven, Conn.—p. 347.
Medical Fees in the Colonial Period. H. S. Burr, New Haven, Conn.—p. 359.
The Hypothetical A-Factor and Trypanosome Infection. G. H. Smith and P. B. Cowles, New Haven, Conn.—p. 365.
Seventeen Reputedly Antipyretic Chinese Drugs: Their Effect on Body Temperature of Rats. Louise G. Hutchins, New Haven, Conn.—p. 369.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Physical Medicine, London

11: 175-196 (Feb.) 1937

Effect of Breathing Exercises on Movement of Diaphragm. G. Boehm.—p. 176.
Ultraviolet Radiators and Their Biologic Evaluation. E. O. Seitz.—p. 179.
Ellis Microdynameter. M. Whitby.—p. 186.

British Medical Journal, London

1: 375-430 (Feb. 20) 1937

Clinical and Biochemical Syndrome in Lymphadenoma and Allied Diseases Involving Mesenteric Lymph Glands. N. H. Fairley and F. P. Mackie.—p. 375.
*Treatment of Minor Burns by Amyl Salicylate and Other Salicyl Esters. R. L. Stewart.—p. 380.
Lithopedion: Note: Report of Case. P. Cave.—p. 383.
Operation for Cure of Adult Hypospadias. A. H. McIndoe.—p. 385.
Large Renal Calculi. D. J. Harries.—p. 387.

Treatment of Minor Burns by Amyl Salicylate.—Stewart discusses the results in thirty-nine cases of minor burns treated with amyl salicylate blended with a liquid mixture of isomeric methyl tertiary butyl phenol, 1:1,000 of the 5 per cent phenol solution. This produced a stable analgesic and antiseptic solution. The burns were of third degree in five patients and of second degree in the remainder. The patients presented themselves at the hospital within a few hours after injury; in eleven instances, however, they did not come until one or more days had elapsed, and there was therefore potential or actual sepsis present from the outset of hospital treatment. There is a direct relationship between the depth of the lesion, the presence of sepsis and the length of time required for treatment. The results were almost uniformly good. Healing progressed steadily, and it was seldom that any of the patients complained of really appreciable discomfort. Especially when the primary surface dressing remained intact and there was no excessive exudation, the treatment was painless throughout. The resulting scars were smooth and pliable, though some showed a little surface scaling, which soon disappeared. No contractures occurred. Prompt healing was obtained in a number of cases in which there was some degree of initial sepsis. Amyl salicylate lacks the coagulant effect of tannic acid on the tissues and is therefore unsuited to the treatment of severe and extensive burns from which there is a danger of toxemia and shock. The ester has little if any bactericidal power and therefore requires the addition of the antiseptic. The method is applicable to the treatment of infected as well as noninfected burns and scalds, provided the initial infection is not too severe. When the patients present themselves the affected area is cleansed with physiologic solution of sodium chloride and all raised epithelium is removed. Swabs soaked in amyl salicylate and the antiseptic phenol solution are applied directly to the area, those in actual contact with the raw surface being only two or three layers of gauze in thickness. Wool and a bandage are then adjusted. The patient subsequently attends at intervals of four days, when, if possible, only the outer swabs are removed and the thin one next to the lesion is left in place. Fresh outer swabs, wrung out of the solution, are applied after any excess of serous discharge has been wiped away. As the burnt area dries up and epithelium grows over it the lowest or primary gauze layer loosens off and, when it completely separates, the lesion is found to be healed. Under such conditions the patient has no pain, and no cutaneous irritation or erythema has so far been observed. In some instances, owing to a more active exudation, such an ideal technic is impossible, and the entire dressing requires to be changed once or oftener. On occasion there is some scaling or even crusting after the main part of the surface has healed, and olive oil is applied until the scales or crusts separate. Otherwise simple dry gauze dressings are used to protect the recently healed area for a few days.

Chinese Medical Journal, Peiping

51: 1-158 (Jan.) 1937

Continuous Intravenous Infusion. H. H. Loucks, J. J. Huang and D. D. Hull.—p. 1.
Diabetes Mellitus: Analysis of 347 Cases (Chinese Inpatients): Part I. Incidence Symptoms, Examination and Complications. S. H. Wang.—p. 9.

Paris Médical

1: 181-192 (Feb. 27) 1937

Major and Minor Signs of Acquired Syphilis. L.-C. Waintraub.—p. 181.
Swineherds' Disease: Porks' Grip and Human Grip. J. Verge and N. Leclainche.—p. 187.

*Arrest of Migraine Crises by Intravenous Injections of Hypertonic Salt Solutions. G. Villey and J.-F. Buvat.—p. 189.

Some Reflexions on Physiology of Opening of Eyelids. J. Voisin.—p. 191.

Arresting Migraine Crises—In 1934 Villey and Buvat presented three cases of epilepsy in which regular intravenous injections of hypertonic salt solutions were given. The favorable results obtained led them to attempt these injections against migraine. Although the number of cases under observation was small, the results obtained are of interest, as it is known that certain migraines may be regarded as a form of epilepsy. It is a syndrome of intracranial hypertension: headache, vomiting and bradycardia. In the first case there had been violent migraine attacks for several years often lasting for forty-eight hours and refractory to analgesics. An intravenous injection of 20 cc. of a 10 per cent solution of sodium chloride was given: fifteen minutes later the patient began to have a salty taste in her mouth and she soon felt a progressive cessation of pain. Nine days later another crisis was treated similarly and was followed by total arrest of pain. Two other cases of varying severity were treated in the same manner with equal results. But in one patient there was a short lipothymic reaction with a retrosternal sensation of heat. A fourth patient showed no favorable results.

Policlinico, Rome

44: 121-176 (March 1) 1937. Medical Section

Specificity of Petragrani and Witelsky Klingenstein Kuhn Antigens in Tuberculosis. I. di Marco.—p. 121.

Relation Between Vitamin C and Capillary Fragility. L. Cotti.—p. 134.

*Measuring Capillary Resistance by Skin Suction. F. Recchia and Elena Signorelli.—p. 158.

Pathogenesis of Acute Edema of Lung: Experiments. G. M. Cataldi.—p. 170.

Measurement of Capillary Resistance to Suction of Skin—Recchia and Signorelli studied the value of the tests of resistance of the capillaries to suction of the skin in the clinical diagnosis of actual and latent hemorrhagic diathesis. Suction of the skin was made by a cupping glass. Capillaroscopy was simultaneously performed. The suction test is more sensitive than the bandage test. It shows latent hemorrhage when the latter gives negative or slightly positive results. For interpretation of results the skin suction is made in a given area for four minutes with a decompression of 7 or 8 cu. mm. of mercury. Under the same conditions of time and decompression, the nonappearance of punctiform hemorrhages or the appearance of one or two hemorrhagic points indicates negative results of the test. The appearance of four or five hemorrhagic points shows weak positive reaction, that of from six to ten hemorrhagic points indicates average positive results, and more than ten hemorrhagic points indicates intense positive results of the test. Besides the number of hemorrhagic points, the diameter and morphology of the induced hemorrhages (combined capillaroscopy) and the rapidity of appearance and volume of the cutaneous hemorrhages have to be evaluated.

Semana Médica, Buenos Aires

44: 629-708 (March 4) 1937. Partial Index

*Definition and History of Absolute Abstinence in Treatment of Puerperal Fever. J. B. Gonzalez.—p. 629.

Medical Treatment of Functional Strabism. Paulina Satanowsky.—p. 645.

Cystic Fibro-Adhesive Spinal Arachnoiditis and Meningoradiculoneuritis of Zoster Origin. R. Soto Romay and R. Dassen.—p. 663.

Oxygen Therapy: Applications. J. M. Marquez Miranda.—p. 669.

Dystocia in Vagina Having the Form of an Hourglass: Case. D. Iraeta and J. R. Obiglio.—p. 673.

Spontaneous Pneumothorax in Pulmonary Tuberculosis: Case. G. Fonseca, H. López Alcoba and A. Dalto.—p. 700.

Treatment of Puerperal Fever—González's management of puerperal infection consists in absolute abstinence from any intravaginal examination, intra-uterine lavage or any local application of medicine. The treatment consists only in rest and administration of drugs which stimulate the natural defenses

of the organism. The treatment is based on the theories of immunity, the diapedesis phenomenon and the local defensive action of the leukocytes if they are not disturbed. The author has obtained satisfactory results from the treatment since 1919 in several maternity hospitals of Argentina, and his results have been reported to medical congresses. Since this treatment was established in Argentine hospitals the prognosis of puerperal fever has entirely changed for the better.

Beiträge zur Klinik der Tuberkulose, Berlin

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Significance of Roentgenologic Demonstration of Layers of Lung. W. Brednow.—p. 109.

Atelectatic Scars of Pulmonary Apex. K. Baar.—p. 123.

*Percental Increase of Mesenteric Primary Complexes in Rural Population and Their Explanation by Dairy Methods. E. Oesterreich.—p. 128.

Studies on Secretion of Gastric and Salivary Glands in Pulmonary Tuberculosis. G. Fabian.—p. 135.

Cardiac Pathology in Pulmonary Tuberculosis. K. Pfeil.—p. 161.

Twelve Year Lymphogranuloma: Death from General Tuberculosis. A. Nagel.—p. 176.

*Constitution, Race and Tuberculosis: Anthropologic Studies on One Thousand Patients with Tuberculosis. F. Potthoff.—p. 180.

Primary Tuberculous Complexes in Mesenterium—Oesterreich, in studying the necropsy material of the pathologic institute of the University of Greifswald, observed that in this material the primary tuberculous process was in the mesenterium more frequently than occurs in other necropsy materials. She emphasizes that the most frequent source of infection of primary intestinal tuberculosis is the milk of tuberculous cows. In view of this fact, she thinks that the high incidence of primary mesenteric complexes in the necropsy material of Greifswald may readily be explained. This material is derived largely from rural regions in which the people habitually consume raw milk, usually from their own cows, the milk being neither pasteurized nor subjected to control as regards the tuberculous infection of the cows.

Constitution, Race and Tuberculosis—Potthoff subjected 1,000 men with tuberculosis to careful anthropologic studies. He was unable to detect a particular shape of the thorax among these men and he also failed to detect the so-called paralytic shape of the thorax. On the contrary, he found not only that the chest measurements of the tuberculous patients corresponded to the average of the population but that there was even a comparatively large percentage in whom the chest measurements exceeded the normal. Investigations on the relationship between racial characteristics and tuberculosis revealed no connection between these factors. The largest part of the report takes up the problem of constitution, but here too the author arrives at practically the same conclusion as in the other two questions. He found that the extremely asthenic body structure is just as rare among the tuberculous patients as among the population in general. In the conclusion he emphasizes that there is no special externally recognizable and anthropologically measurable constitutional structure that is characteristic for tuberculous patients or indicates a predisposition for tuberculosis.

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*Tuberculous Splenomegaly and Splenogenic Inhibition of Bone Marrow Function. J. Engelbreth-Holm.—p. 17.

Investigations on Size of Ossification Nuclei in Wrist in Normal Children Aged from 5 to 15 months, with Especial Regard to Diagnosis of Myxedema. Grete Gørtz and S. Gørtz.—p. 43.

Tuberculous Splenomegaly and Splenogenic Inhibition of Bone Marrow Function—Engelbreth-Holm reports four cases of tuberculous splenomegaly. He says that splenomegaly on a tuberculous basis can lead to inhibition of the bone marrow function and thus occasion certain changes in the peripheral blood, among which anemia and leukopenia are most common and thrombopenia is less common. Examinations of the bone marrow seem to indicate that these changes in the blood depend on a restriction of the maturing or sending out of blood cells from the bone marrow and not on a restriction of cell production in the bone marrow.

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